Occupational Outlook Quarterly

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The Occupational Outlook Handbook Through Five Editions

Jobs and Training for Women Technicians

Employment in Professional Mathematical Work in Industry and Government

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Bureau of Labor Statistics
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This publication is issued to provide counselors with current information on employment trends and outlook, based primarily on the continuous research and statistical programs of the Bureau of Labor Statistics. It supplements and brings up to date information in the Occupational Outlook Handbook. It is prepared with the advice and assistance of the --

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Bureau of Apprenticeship and Training
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Prepared under the supervision of James J. Treires in the Division of Manpower and Employment Statistics, Harold Goldstein, Chief. Authors are staff members of the Division unless otherwise noted.

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THE OCCUPATIONAL OUTLOOK HANDBOOK THROUGH FIVE EDITIONS

by James J. Treires

Increased public recognition of the importance of counseling and the impetus given by the title V program of the National Defense Education Act of 1958 have brought thousands of new counselors into the occupation in recent years. This article, marking the release of the new 1961 edition of the Occupational Outlook Handbook, is addressed especially to new members of the profession. It traces the background and development of the Handbook and shows how it has come to play a key role in the Nation's growing vocational guidance and counseling activities. The experienced counselor who has made constant use of the Handbook will find new sections added and a fresh appraisal of employment outlook in the jobs covered in the 1961 edition.

The First Handbook

In 1938, the President's Advisory Committee on Education recommended the creation of an Occupational Outlook Service in the Bureau of Labor Statistics. Through the turbulent period intervening, the needs for and the objectives of the Service, as stated in the Committee's Report of some 23 years ago, have remained much the same:

"....An occupational outlook service is needed that will provide a clear description of each of the major occupations or groups of minor occupations, the kind of a life each occupation offers, the character of the preparation essential to enter it, the numbers employed and the trend of employment, the numbers of new employees taken on each year, and the numbers of youth in each year of college or secondary school preparation who have the intention of entering the occupation if possible. Such information presented in its historical, geographical, and technological setting would go far toward providing individuals with a broad objective and factual basis for making the choice of an occupation and deciding upon the kind of training to pursue.

"....The Bureau of Labor Statistics in the Department of Labor has been carrying on closely related studies for many years and would appear to be the most appropriate agency to make long-range studies of the occupational outlook. The Committee therefore recommends that the Bureau of Labor Statistics be assigned responsibility for carrying on an occupational outlook service."

This recommendation was implemented in 1941, when the Occupational Outlook Service was organized under a specific authorization by the Congress. Although the first studies were begun at that time, it was not until after World War II that the staff was able to devote its efforts to the preparation of occupational reports for use in guidance. Drawing on the experience and knowledge gained from studies of wartime manpower requirements, the occupational outlook staff made rapid progress. By mid-1946, a manual of occupational outlook information had been prepared for use in the Veterans Administration counseling and rehabilitation program.

The potential usefulness to school counselors of the type of material contained in the VA manual led the National Vocational Guidance Association, at their convention in March 1947, to pass a resolution calling upon the Congress to authorize preparation and issuance of a volume of occupational information for public sale. In response to this action and the requests of many other private individuals and groups, the first edition of the Occupational Outlook Handbook was published in 1949.

Reading between the lines of that Handbook, it becomes evident how drastically our perceptions of the economic environment have changed. At that time, people tended to think in terms of a "normal" situation to which the United States would return after the disruption of World War II. The postwar

world was thought of in the dimensions of the late thirties. Rapid employment growth was looked on as mainly due to "artificial" factors such as mobilization or reconversion.

Today, rapid economic growth and an expanding population are not merely accepted; they have become basic assumptions upon which to base estimates of the future. The atomic and hydrogen bombs, violent political changes throughout much of the world, the introduction and application of automation in large sections of industry, the development and successful launching of satellites and manned space vehicles--these and many other developments have greatly changed our ideas about "normal" economic life.

These changes are also apparent in the statements of the economic assumptions underlying the forecasts of employment outlook. The severe impact of the depression of the 1930's and its lingering effects on economic thought are quite evident in these lines: "....the assumption of favorable business conditions was made in each case; at the same time, the effect of a business depression upon employment opportunities in the occupation is brought out. Some occupations suffer severely in depressions, while others have greater stability." It is rather ironical that by the time business depressions had come to be thought of as "normal" expectations, pervasive changes in the dynamics of our political and economic life as well as the impending contest with the Communist world were making severe, long-term depressions much less likely.

In retrospect, the 1949 Handbook also presents a strong case for continued caution in making forecasts of a quantitative nature. Projections of population growth, upon which many of the forecasts made in the book were based, turned out to be far off the mark. At that time, high birth rates were still considered a short-term postwar phenomenon. But the American people quickly disproved this theory. Although the 1949 projection was a 1975 population of only a little more than 160 million, that point was passed in the early 1950's, and the Census Bureau now expects the 1975 population to number well over 200 million.

Evolution of the Current Occupational Outlook Program

At the time the first Handbook was published, very little occupational literature was available, and more than 30,000 copies of the bulletin were sold within a year of its release. This dramatic demonstration of the need for up-to-date and objective occupational information for use in vocational guidance was a major factor in the Bureau's decision to issue, with the backing of the VA, a revised and enlarged edition which was released in 1951.

While this Handbook was being printed, forces of the North Korean Republic invaded South Korea. This resulted in mobilization and involvement of American troops.

The diversion of the Occupational Outlook Service staff's efforts to the manpower problems arising out of this mobilization brought a long hiatus in the outlook work. As the war situation shifted into an uneasy truce, pressures for a new edition of the Handbook began to grow. Again the NVGA, which had become a division of the newly formed American Personnel and Guidance Association, was instrumental in pointing out the need of the rapidly growing guidance and counseling profession for this publication.

As a result of these developments and of increased public recognition of the key role of vocational guidance in staffing essential occupations and effectively utilizing the Nation's manpower resources, the Congress in 1955 provided for the maintenance of the Occupational Outlook Handbook and its related publications on a regular, up-to-date basis. This involved a program of regular appraisal of the employment outlook.

In 1957, a third edition of the Occupational Outlook Handbook was pub-

lished. Also, in that year the Occupational Outlook Quarterly was first issued to provide information on current developments between editions of the Handbook. The third element in this coordinated publications effort--the series of inexpensive reprints from the Handbook, now titled the Occupational Outlook Report Series--also dates from the 1957 edition. The 1957 Handbook and related publications were followed, in due course, by the 1959 edition and the just-issued 1961 edition.

Changing Concepts and Techniques

The current research and publications programs of the Occupational Outlook Service have developed through a long process of experimentation, evaluation, consultation, and modification. As one might expect, no sharp breaks are apparent in the development of the program. Yet in comparing the current work with that of 10 or more years ago, a number of significant differences become clear.

The descriptions of nature of work are generally much more graphic and informative in the later editions. For example, the descriptions of the job duties of professional workers, such as nurses, engineers, and accountants, now include specific information about each of their major work areas as well as descriptions of the usual specialties in these fields. Similarly, the sections on training and qualifications have been considerably revised to reflect the ever-changing requirements for entry into occupations.

If a generalization can be applied to these changes, it is probably that the years have brought about a much closer relationship between the kinds of occupational information presented and the kinds considered by vocational guidance counselors to be most valuable. This improvement has been due in large measure to the fruitful exchange of ideas and information between the Occupational Outlook staff and vocational guidance counselors through professional association and informal contacts over many years. This cooperative relationship is now formalized in the Bureau's Personnel and Guidance Advisory Council, comprised of leaders in the vocational guidance field who meet periodically with the outlook staff. On the one hand, the staff has gained a much clearer conception of what guidance personnel need to know about jobs. On the other hand, guidance personnel have acquired a much better knowledge of the possibilities, problems, and limitations of research work in occupational and industrial employment, and of the difficulties of "translating" the research data into terms meaningful to young people considering a choice of career.

The current program, which calls for biennial revision of the Occupational Outlook Handbook, is a recognition of the dynamic nature of our economy. Long-term forecasts of employment trends in an occupation or industry made in one Handbook must be thoroughly reexamined and analyzed in the light of economic developments each time a new edition is prepared. Thus the work of supplying accurate occupational information in a growing economy is a job that is never completed. The Handbook does not present any final answers; its rationale is that it provides up-to-date information for use as a guide for making career decisions.

Expanding Occupational Coverage

In comparing the five editions of the Handbook, the steady increase in the physical dimensions of the book is immediately apparent. Nevertheless, the actual growth in number of fields of work covered by each succeeding edition is considerably greater than this comparison would indicate. As more and more occupations are analyzed, large sections of earlier reports have been condensed, not only to make room for the new sections but, more importantly, to remove facts that are not directly relevant to the problem of choosing a career.

One of the most striking examples of this process is the Agricultural Occupations chapter, which covered 57 pages in the 1949 Handbook and included

reports on the outlook in specialized fields which were of interest to relatively few persons. In the 1961 edition, this chapter includes only 18 pages, but it is believed to provide a better indication of the occupational opportunities open to a young person interested in agriculture.

Questions users of the Handbook often ask members of the Occupational Outlook research staff are: "How do you decide which occupations and industries to study? What are the criteria for making these decisions?" No fixed rules are applied to every decision. However, in view of the limited resources and staff available, major weight in selecting occupations is given to the following factors:

1. Number of persons employed.
2. Amount of education and training required for the job.
3. Prospects for rapid employment growth.
4. Amount of interest in the field expressed by young people and counselors.

How closely have these criteria been observed in actual practice? Some of the occupations which have been covered in every edition are as follows:

Teachers
Health service workers
Engineers
Accountants

Beauty operators
Auto mechanics
Printing occupations
Railroad occupations
Building trades
Draftsmen

Machine shop occupations
Foundry occupations
Forge shop occupations

The first group of four are all large occupations which also require at least a college degree to enter.

The second group might be described as large fields of skilled employment in which many young people had expressed interest and for many of which considerable information was already available in the Bureau of Labor Statistics.

But how does one account for inclusion of the third group, which is comprised of the major metalworking occupations? Admittedly, these are rather large occupations, but other equally large occupations were not included. Obviously, there were other factors to consider in this case. In this instance, the skilled metalworking trades were one of the most critically needed groups of workers in the World War II civilian labor force, and the Bureau of Labor Statistics had already made extensive studies of their employment as part of a vigorous Department of Labor effort to help meet the Nation's wartime manpower needs.

As each succeeding edition has added a number of new fields of work, the proportion of research effort devoted to revision as compared with studies of new occupations has increased greatly. The 1961 Handbook which describes more than 650 occupations and 30 major industries, covers about 90 percent of professional and related and sales jobs in the United States; nearly as high a proportion of skilled jobs; more than half of clerical and service jobs (excluding private household workers); and smaller proportions of administrative and semiskilled jobs. The major types of farming are also described. Clearly, the revision and updating of a book of this size is in itself a formidable task.

Another effect of this expansion of coverage is that adding new sections has become more a matter of filling in gaps than of including new occupations. In some respects, choosing new occupations to study has involved increasingly difficult decisions. Let us examine the additional fields of work covered for the first time in the 1961 edition of the Handbook to see what factors were considered in the decisions to include them:

Electronic Computer Operating Personnel
Astronomers

Geographers
Photographers
Dental Laboratory Technicians
Podiatrists

Business Administration and Related Professions
Appliance Servicemen
Factory Jobs Not Requiring Specialized Training
Apparel Industry
Post Office Occupations

The first group of two were included as a result of rapid technological advances and the interest they generate. Automation has created a number of new occupations which are of special interest to young people. The new Handbook statement on electronic computer operating personnel is in addition to the one on programmers, which first appeared in 1959 and has been completely revised in the new edition. The statement on astronomers was added because of a greatly increased interest in astronomy as a career, resulting from the rapid advances in space exploration. In the case of the second group, the rapid increases in employment of professional and technical workers anticipated in the Bureau's studies were partially responsible for the decision to add these four occupations.

The third group, which represents the greatest expansion in terms of the whole occupational spectrum, can be characterized roughly as encompassing large occupations which presented unusual research problems for which adequate staff and other resources were not available in earlier years. The factory jobs chapter is the first step in a long-range effort to supply helpful information to young people whose education terminates with a high school diploma or to those who drop out before graduation.

In general, then, the occupational outlook research effort has progressed from a small number of intensive studies of the largest occupations and industries to a great number of studies covering the bulk of the Nation's workers and requiring a proportionately greater research effort for each new occupation covered because of the lack of comprehensive information and statistics.

Implications for the Future

Manpower: Challenge of the 1960's, a Department of Labor chartbook, shows that this decade will see an unprecedented number of young people--26 million--begin their working lives. The hundreds of Bureau of Labor Statistics studies of outlook in specific occupations and industries, viewed broadly, indicate a continuing acceleration of the rate of technological change. These two basic developments, coming together rapidly in the sixties, threaten to revolutionize many of our established ideas and ways of doing things. Many new problems will have to be faced. For example, the need for trained workers will be greater than ever before. But at the same time, the worker who is highly trained in a narrow specialty will be especially vulnerable to technological displacement. The need for college training will be much greater in tomorrow's labor market. But the college of one's choice, even for the student with an excellent high school record, may be increasingly difficult to enter. The counselor is called upon to help the student select a lifetime occupation consonant with his interests and aptitudes. But the counselor must now reckon with the fact that the student may outlive a number of today's occupations, whereas many new occupations, which are now beyond his range of choice, will come into being during the span of his working life.

These are just a few of the thorny problems which lie ahead. Solving them--or perhaps merely meeting them effectively--will require strenuous efforts from all groups represented in the guidance movement. Counselors will need to learn more about the occupational world, not only as it is but as it will likely become. Those who prepare occupational information will need to devise better methods of getting and presenting the facts about jobs. Private

and public institutions concerned with education and job training must increasingly base their curriculums on up-to-date knowledge of the Nation's industries and their manpower needs. New training and retraining programs must be initiated to prevent technological progress from being purchased at the price of widespread technological unemployment.

This brief review of nearly 20 years of occupational outlook work has indicated, perhaps indirectly, the critical relationship between effective vocational guidance and reliable occupational information. Preparing up-to-date and accurate occupational information in this dynamic era is itself a very imposing challenge. Interpreting and communicating these data in terms meaningful to people choosing their careers, however, is not only an additional area of critical importance but it is also one in which the outlook staff must have the active cooperation and assistance of those engaged in the actual counseling process.

PROFESSIONAL CAREERS IN FEDERAL SERVICE

The Federal Service Entrance Examination (FSEE) is currently being given by the U.S. Civil Service Commission to young people who wish to embark upon professional careers in the Federal Government. This examination--consisting of a written test measuring a condidate's career potential--is open primarily to college seniors and graduates and to persons with specified experience in administrative, professional, technical, or other responsible work. Certain age, physical fitness, and educational qualifications are required of applicants for the written tests.

Persons who pass the FSEE are eligible for appointment to trainee positions in a wide variety of career fields in various Federal agencies. Their starting salaries are $4,345 or $5,355 a year, depending on the candidate's qualifications and academic record. In 1960, about 7,000 candidates were appointed to career positions in Federal establishments located in Washington, D.C., throughout the United States, and a few in foreign countries.

Young people may also qualify for special management training in Federal agencies by successfully completing the Management Intern Examination. The examination, given in conjunction with the FSEE, is used to recruit young people with management potential for special training programs lasting from a few months to 18 months after appointment. Since only a limited number of internships are available, only outstanding candidates are rated eligible. Management intern candidates must demonstrate outstanding professional potential by passing a special written test. They must also qualify on the basis of a group interview and be highly recommended by persons who have a first-hand knowledge of their past education and experience. Most management intern positions are located in the Washington, D.C., metropolitan area. Starting salaries are $5,355 or $6,435 a year, depending on the candidate's qualifications.

The FSEE written tests are scheduled for January 13, February 10, March 17, April 14, and May 12, 1962. Applications to take these tests must be filed with the appropriate Civil Service Commission office by December 21, 1961, January 25, March 1, March 29, and April 26, 1962, respectively. The management intern written tests, to be taken together with the FSEE tests, are scheduled for January 13 and February 10, 1962; applications must be filed no later than December 21 and January 25.

Application forms for both examinations, as well as additional information (contained in CSC Announcement No. 265), are available from post offices or from the U.S. Civil Service Commission, Washington 25, D.C.

JOBS AND TRAINING FOR WOMEN TECHNICIANS

by Mary B. Meyer
Women's Bureau

The expanding field of technical occupations offers many and varied employment opportunities to women. Technical workers, utilized by some of the fastest growing industries in our economy, are expected to be needed in ever-increasing numbers as technology and science advance.

To learn the kinds of opportunities available to women in the technical field, Women's Bureau representatives interviewed a selected group of employers in numerous industries which employ technicians (except medical and dental technicians).[1] Staff members of the U.S. Public Employment Service system were also consulted regarding the acceptance and utilization of women technicians by employing establishments.

The interview data indicated that many employers are willing--some eager--to give women equal consideration with men for technical jobs in their organizations, provided only that the women are qualified and the physical conditions of the work suitable.

A programmer operates a magnetic drum data processing machine

Variety of Job Opportunities

Women and girls interested in this field of employment will find a wide range of specializations among technicians. A substantial proportion of technical jobs are in the fields of engineering, electronics, electrical technology, chemistry, aeronautics, communications, and data processing. Smaller numbers of technical workers are engaged in architecture, design, construction, instrumentation, or automotive operations--to name a few.

Women are more enthusiastically accepted in some technical specializations than in others. Many more are working in research laboratories and in statistical operations than in actual manufacturing processes. Increasing numbers of women technicians are being hired in electronic research. Some employers prefer women for statistical data processing jobs and as chemical laboratory technicians. One supervisor maintained that women were more satisfactory than men for such precise, detailed work as physical testing and spectrograph and quantometer analysis. A chemical research laboratory representative also found women especially competent in microanalytical work, in

[1]The term "technician" is generally used to designate a technically skilled worker whose work is in support of that done by a professional engineer or scientist and for which training beyond the high school level but below the college-degree level is usually required.

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which precise hand skills combined with technical interests are important, and in research supporting fields involving instrumental measurement and characterization of materials. In the particular areas of technical work in which such characteristics as competence in mathematics and statistics, precision, patience, and delicate hand skills are especially important, many employers claim women are often more satisfactory than men. In addition, some personnel directors noted that they had difficulty filling jobs in which a combination of technical knowledge and typing were needed, and that a woman with technical training who could also type well would be very readily hired for such technician jobs.

Sometimes the physical conditions involved in a particular job are such as to make it unsuitable for women. However, some employers noted that as some units (such as electronic devices) are reduced in size, the problem of handling heavy weights will be reduced, and the need will be for more delicate hand skills in handling the smaller units. This trend might reasonably be expected to result in more employment opportunities for women in the future.

Many of the firms recruiting at schools interview qualified women as well as men for technical jobs. When there is an acute shortage of trained workers, they make special efforts to interest women in employment. One large nationwide firm, interested in hiring women for technical jobs which require a good background in mathematics, distributes a recruitment pamphlet directed specifically toward women. Despite the rising interest of employers in hiring qualified women for technical jobs, were is some indication that women are more likely to be placed in lower level technician occupations requiring limited training or skill and offering less opportunity for advancement.

Employers of Technicians

Technicians are employed in all parts of the country. However, the greatest opportunities are in metropolitan areas in industrial States; and large companies, usually employing 1,000 or more workers, are particularly important users of technical services. Employers include all levels of government, the Armed Forces, nonprofit organizations, and a variety of private concerns. Industries undergoing rapid technological change and those producing and using new types of equipment--notably automated machinery--have need for large numbers of technicians. The increasingly important areas of research and development in particular offer opportunities for women technicians.

Training

Employment opportunities for women in technical work, as in other fields, are strongly influenced by the extent to which they obtain adequate training. Probably many more women would be employed as technicians today if they met the required qualifications.

Technical training for women, as for men, is usually available at junior or community colleges, extension divisions of universities or colleges offering special technical programs, technical institutes, technical high schools, vocational schools, and correspondence schools. Technical training may also be obtained through formal apprenticeship programs, Armed Forces' training courses, and on-the-job training offered by industry.

Most technical institutes accept women students who can meet their entrance requirements. These requirements vary from one institution to another. Some admit only high school graduates with a good record in mathematics and science. Others will accept candidates who have not graduated from high school, and may even offer special courses to help beginning students obtain the basic knowledge needed in mathematics and science.

The president of a midwestern technical institute stressed that "many girls

could become first-rate technicians in many of the fields of engineering technology. ... Attention to attracting women students to engineering technician programs might tap a potentially large source of first-rate students and future technicians with obvious benefits in the coming decades of shortage of technical manpower."

A special problem faced by many women workers is that of keeping up with new developments in their field and of retaining their skills while they are out of the labor market because of family responsibilities. This is of special importance in technical work, where changes are constant and rapid. Some women solve this problem by taking temporary or part-time jobs in this period.

A small Midwestern research firm, for example, reported that it sometimes needs technicians to work on a specific project on a part-time or temporary full-time basis. For such jobs, the company hires qualified women technicians when they are available. In general, opportunities for such work are rare, but it would be worthwhile for women who are concerned about retaining their skills during the time they are not steadily in the labor market to investigate the possibilities for such employment in their communities.

Numbers of Women Students. Although statistics on the numbers of women receiving technical training are incomplete, it is clear that women are only a very small proportion of all those enrolled in technical courses. They tend to be heavily concentrated in two broad areas--data processing and computer programming and electronics. Smaller but significant numbers of women are learning technical skills relating to design, laboratory work, instrumentation, chemistry, and mechanical technology, among others.

In all types of higher institutions combined, 12,985 students graduated from engineering-related curriculums of 1 to 3 years' duration in the 1957-58 school year, according to the U.S. Office of Education. These included only 73 women, less than 1 percent of the total.

Technicians' courses are also offered in secondary and post-secondary schools with funds provided under the Vocational Education Act of 1946 (George-Barden Act). In addition, the program established under Title VIII of the National Defense Education Act (NDEA) of 1958 makes training of less than college grade available to both youth and adults "...to fit them for useful employment as highly skilled technicians in recognized occupations requiring scientific knowledge...in fields necessary for the national defense." Courses are given in high schools, vocational and technical schools, community and junior colleges, and 4-year colleges.

Preliminary unpublished data indicate that in the fiscal year ending June 30, 1960, over 7,000 girls and women received technical training (excluding medical and dental technicians) in courses established under the provisions of these Acts. They accounted for about 5 percent of all students enrolled in these courses. More than two-fifths of the girls took courses in data processing. Another one-fifth studied electronics and electrical technology, chiefly electronics. A large number were also enrolled in courses for laboratory technicians. Other specialized courses in which 100 or more women were enrolled were aircraft, chemical, design, mechanical, instrumentation, and production technology. In three areas--data processing and computer programming, laboratory technology, and design technology--women comprised 20 to 30 percent of all students enrolled under the two programs. In all other specializations, they were less than 5 percent of the total.

Courses available under the two Acts are of two general types--preparatory courses for those seeking to enter the field, and extension courses for those already working in a given field who need further training for advancement. The large majority of the women being trained under these programs were enrolled in extension courses, although

A college math student learns how to operate an electronic computer

the actual proportions varied widely among the different specialized courses. The few exceptions included chemical and metallurgical, design, and electrical technology--areas in which most of the women trainees were enrolled in preparatory courses. In data-processing and in electronics courses--those in which the largest numbers of women were enrolled--87 percent and 99 percent, respectively, were in extension courses.

Women in the Armed Forces who have demonstrated aptitude for technical work through testing and placement programs are enrolled in coeducational training courses. The available data indicate that both the number and proportion of women enrolled in such courses are very small.

On-the-Job-Training. On-the-job training is often needed in addition to formal training in a technical school or other facility. While the latter provides the basic skills and knowledge needed for technical work, many employers find it necessary to supplement this with additional training in the particular skills required in their industries.

Statements from employers offering on-the-job technical training ranged from

those who were glad to offer such training to women who were capable and interested, to those who were reluctant to invest in training if a woman's work life were to be terminated early. A woman supervisor of a large laboratory stated that few women in her organization had the required background to be selected as trainees for its training program in drafting and design. But, in this same company, women with a bachelor's degree in science or mathematics are considered valuable as senior technical aids and fill most of these positions.

A few employers said that the preferred method for filling technical jobs in their plants is to give production workers who show aptitude and interest on-the-job training as technicians. This practice, however, presents a difficulty for women, since they rarely fill the particular job from which these trainees are most likely to be selected.

Some firms consider a high school education to be sufficient background for certain types of technical work. For example, one large employer of men and women doing work at all levels of technical competence reported that women who have graduated from high school and have a good background in mathematics, including trigonometry and algebra, are sometimes hired and trained for work as data processors. Women who have had some college training but did not obtain a degree may also be hired for such work.

Advancement

Advancement opportunities for women technicians depend, as in most types of work, largely upon performance, seniority, and the acquisition of additional education. Many companies have formal promotion plans which provide for full consideration of the qualities, accomplishments, and potentials of all employees. Officials of some firms, however, said they attempt to determine the "career-mindedness" of their women employees. They then place women with limited career goals in positions with limited opportunity for advancement, while those who look forward to advancement and a longer career are given positions with development potential.

The claim that women have higher job turnover and are therefore less entitled to consideration for advancement was discussed by some of the employers surveyed by the Women's Bureau. Some mentioned that women's absences from work, chiefly for family reasons, were greater than men's, and that women were likely to drop out of the labor market--either temporarily or permanently--because of marriage and family responsibilities.

Other employers felt that women technicians are actually a more stable group during their work life than are men. Their experience has been that men changed jobs with more frequency. For example, one official from the aircraft and missiles field said that he did not consider women's turnover a significant factor because of the generally high mobility of all electronic technicians. This view is substantiated by a Bureau of Labor Statistics study which revealed that the average electronics technician changed jobs every 4 years during the 12-year period between 1940 and 1952.[2]

In many technician occupations, according to some personnel officers, some supervisory positions require a breadth of experience that few women have. One employer recommended that women, therefore, take as many scientific and mathematical courses as possible and also work for a while in a production job--for instance, an assembly-line job. The background and experience gained might then make them eligible for further in-plant training and thereby enhance their chances for advancement.

Conclusions

There is no simple explanation for the small number of women technicians

[2]The Mobility of Electronic Technicians, 1940-52, BLS Bull. No. 1150 (1954).

at present. The low numbers of women who prepare for such work is obviously a major factor. Although women have access to technical training, their participation in training programs is influenced by the attitudes of parents, counselors, and educators, as well as those of the women themselves. Many technical jobs are the kind that have been traditionally regarded as "men's work." Many women, therefore, may feel that they do not have much chance for employment and advancement in such jobs. Most of the employers interviewed by the Women's Bureau, however, reported an interest in hiring women who are qualified. In addition, both the presence of the few women who have entered the technician occupations and their performance can be expected to motivate other women to consider these occupations in their career plans.

Since early hobbies and orientation help to mold vocational choices, they must be considered in efforts to interest more women and girls in technical work. A BLS study has revealed that many electronic technicians had related hobbies that led them to this vocational field.

In some instances, men who had started training for professional careers in such fields as physics, mathematics, chemistry, electronics, or engineering and were unable to complete their plans, have moved instead into subprofessional work of a technical nature in the same or related field. Since relatively few women, however, ever plan to enter these professional fields, this is not a potential source of supply for any substantial number of women technicians.

Perhaps another reason for the small number of women now doing technical work is the comparative newness of the field. Knowledge of the opportunities for women in technical occupations is therefore limited, both on the part of girls themselves and those who advise them. However, inquiries received by the Women's Bureau indicate that guidance and counseling people are becoming more aware of the need for such information.

There are many reasons why it would be advantageous for women to include technical work in their career considerations. Job opportunities, already numerous, are expected to become even greater and should appeal to people with diverse interests because of the varied specializations possible. Both the financial returns and the job satisfactions would be very good for the woman who is interested, well trained, and competent; and opportunities do exist for the qualified worker to advance in her job. In the interests of helping to provide workers for employment fields where they will be greatly needed and of widening the scope of women's occupational choices, vocational advisors will perform a real service by bringing to young women's attention the kinds of training and work opportunities available for technicians.

EMPLOYMENT IN PROFESSIONAL MATHEMATICAL WORK IN INDUSTRY AND GOVERNMENT

by George Hermanson

Young people with a good educational background in mathematics are in demand for a wide variety of positions in industry and Government. Between 1954 and 1960, employment of mathematicians in private industry more than doubled. Employment in related occupations requiring a great deal of mathematics training has also risen rapidly in recent years.

Professional mathematics positions are found in the space, missile, atomic energy, and other programs of industry and Government; in aircraft, electronics, chemicals, and other manufacturing plants; in insurance companies; and in a wide variety of other employing agencies. Some mathematically trained workers help design experiments for biological, medical, and agricultural research, as well as for research in the physical sciences and engineering; others apply operations research techniques to aid in business management and military planning; and rapidly expanding numbers are concerned with formulating mathematical statements of problems and with translating them into code for processing on high speed electronic computers.

To learn more about these employees and the kinds of work they perform, the National Science Foundation and The Mathematical Association of America asked the Bureau of Labor Statistics to conduct a survey of mathematical employment other than teaching. In early 1960, questionnaires were distributed to professional personnel in full-time positions in which mathematical work predominated and in which a knowledge equal at least to that provided by a 4-year college course with a major in mathematics was required. In addition to mathematicians, employees with position titles such as mathematical statistician, actuary, operations research analyst, computer programmer, and engineering analyst met the requirements for inclusion in the survey. About 10,000 persons (roughly half of the estimated total in mathematical employment in industry and Government in 1960) responded; about 1 in 7 was a woman. Their replies provided the data for the final survey report which is condensed in this article.[1]

Beginning mathematician prepares statistical tables for analysis

Major Employers and Functions

More than half the respondents to the 1960 survey were working for aircraft and electrical equipment manufacturers and the U. S. Department of Defense.

[1]The full report on the survey, Employment in Professional Mathematical Work in Industry and Government, which is being published by the National Science Foundation, will be available from the National Science Foundation in the near future.

Private industry alone employed about 80 percent of all professional mathematical workers. In addition to the aircraft and electrical equipment companies, other large employers were machinery manufacturing, petroleum products (including extraction), chemicals and allied products, and insurance. Many employees in mathematical work were also found in engineering and architectural services, telecommunications, and utility companies. Nearly all Federal Government agencies employed at least a few people in professional mathematical work. However, the Department of Defense was by far the largest employer. The National Aeronautics and Space Agency and the Commerce Department also employed significant numbers.

Basic or applied research and development in the natural sciences and engineering was the major mathematical function of more than half the survey respondents. However, about $6\frac{1}{2}$ times as many respondents were primarily concerned with applied research (45 percent) as with basic research (7 percent). Technical services allied to production was the only other type of function in which a sizable proportion (18 percent) of the workers were engaged (table 1).

Educational Attainment

Ninety-four percent of the survey respondents had college degrees, and one-third had advanced degrees--7 percent at the Ph.D. level and 26 percent at

Table 1. Major function of persons in mathematical employment, by type of employer, 1960

Function	All employers	Private industry		Government agencies	Nonprofit organizations
		Insurance industry	Other industries		
All functions:					
Number[1]	9,867	914	6,189	2,542	222
Percent	100.0	100.0	100.0	100.0	100.0
Basic research in the natural sciences and engineering	7.0	.1	5.5	11.4	25.7
Applied research and development in the natural sciences and engineering	45.4	2.9	51.8	44.8	50.4
Nontechnological research, including marketing and other economic research	4.0	5.0	3.8	3.6	10.4
Technical services allied to production	18.3	19.6	21.4	11.7	2.2
Technical services allied to sales, promotion, or distribution	4.4	17.4	4.1	.8	.5
Teaching and training	.8	.3	.9	.8	.9
Administration	8.2	25.5	4.6	11.1	2.2
Other	11.9	29.2	7.9	15.8	7.7

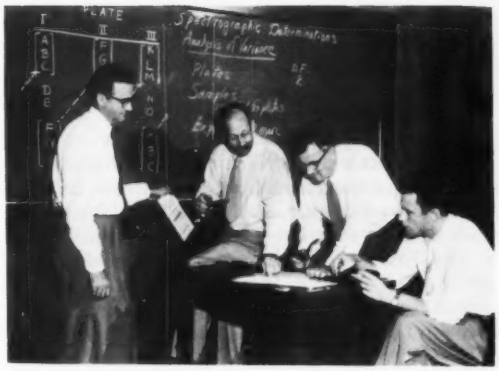
[1]Excludes 115 respondents who did not specify function.

the master's degree level (table 2). Although 6 percent had not received a college degree, almost all of these (99 percent) had earned some college credits. A much smaller proportion of women than men employees had earned advanced degrees. Only 2 percent of the women in this employment had doctorates, and 15 percent had master's degrees--compared with 8 and 28 percent, respectively, for the men.

About two-thirds of the survey respondents who had college degrees had majored in mathematics at their highest degree level; this includes 5 percent whose degrees were in statistics or actuarial science. In addition, almost 1 in 4 of those who held advanced degrees in other fields had majored in mathematics at the bachelor's degree level. Thus, about 70 percent of the college graduates in the survey had received at least one degree in mathematics.

The sizable proportion of respondents who had obtained degrees in other fields indicates that many persons employed in mathematical work in industry and Government must have a knowledge of another subject matter area to which they apply their mathematics. A large proportion (over 70 percent) of those whose highest degree was in a subject other than mathematics had specialized in engineering or the physical sciences.

In addition to the basic mathematics courses of algebra, trigonometry, analytic geometry, and calculus, the courses most frequently listed by the respondents as necessary for their mathematical work included the following:



Mathematicians often work with other scientists to develop statistical designs for experiments

Higher algebra
Theory of equations
Algebra of vectors and matrixes
Differential equations
Advanced calculus
Numerical analysis
Elementary statistics
Mathematical statistics
Probability theory
Programming of high speed computers

Age and Professional Experience

Three-fifths of the survey respondents were under 35 years of age--a high

Table 2. Educational attainment of men and women in mathematical employment, 1960

Educational level	Total		Men		Women	
	Number	Percent	Number	Percent	Number	Percent
All levels	[1]9,815	100.0	8,336	100.0	1,394	100.0
Bachelor's degree.	6,018	61.3	4,866	58.4	1,099	78.8
Master's degree ..	2,519	25.7	2,296	27.5	203	14.6
Doctor's degree ..	712	7.2	682	8.2	25	1.8
No degree	566	5.8	492	5.9	67	4.8

[1]Excludes 167 persons not reporting educational level. Not all of the respondents who reported on their educational level specified their sex.

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proportion for an occupation staffed mostly by college graduates (table 3). Their average (median) age of 32.5 years was low, compared with the average age of 39 years for all professional, technical, and kindred workers in the United States in 1960. Women showed a greater concentration than men in the younger age groups. More than 25 percent of the women--but only 6 percent of the men--were under 25 years of age. One reason for this greater concentration is that a high proportion of women have entered this fast growing field without continuing their education beyond the bachelor's degree.

Table 3. Age distribution of men and women in mathematical employment, 1960

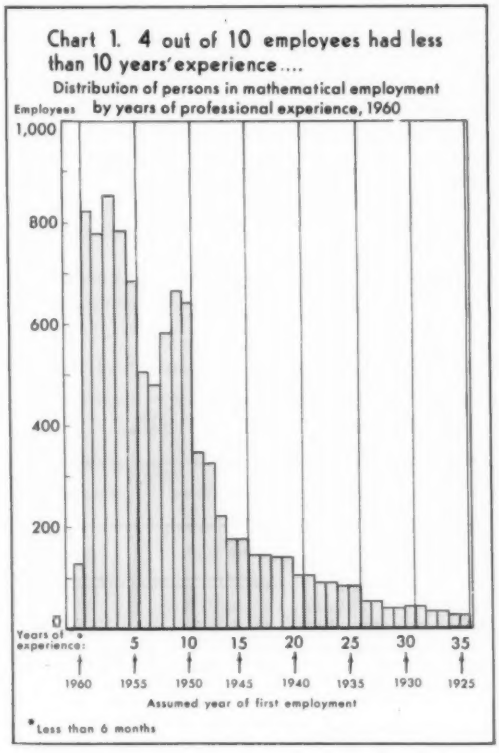
Age group (to nearest birthday)	Total	Men	Women
All age groups:			
Number	[1]9,718	8,307	1,384
Percent	100.0	100.0	100.0
Under 25 years	9.1	6.3	25.5
25 to 29 years	26.0	25.5	28.8
30 to 34 years	25.2	27.1	13.4
35 to 39 years	17.3	18.3	11.6
40 to 44 years	9.5	9.8	8.1
45 to 49 years	5.9	6.1	5.3
50 to 54 years	4.0	3.9	4.4
55 to 59 years	1.9	1.9	1.8
60 to 64 years	.8	.8	.7
65 years and over	.3	.3	.4
Median age	32.5	32.8	28.7

[1]Excludes 264 persons not reporting age or sex.

Persons in mathematical employment in the manufacturing industries were significantly younger, on the average, than those in the insurance industry or in the Federal Government. Their average age was 31.6 years, compared with 34.1 years for insurance company employees, and 34.7 years for Federal Government employees. Also, about two-thirds of those in manufacturing were under 35 years of age, compared with about half of those in insurance and the Federal Government. This large proportion of young people reflects the expansion of research and development activities in the manufacturing industries over the last decade and the growing use of mathematically trained personnel in solving production problems.

The recent rapid growth in mathematical employment in industry and Government is reflected in the high proportion of employees with relatively few years of experience (chart 1). Forty-one percent of the survey respondents had less than 6 years of professional experience, and 29 percent had only 6 to 10 years of experience. Chart 1 also indicates that mathematical employment growth began its spurt in 1948 with the increased supply of post-World War II graduates and suggests that the recessions of 1949, 1954, and 1959-60 slowed but did not halt the growth in employment.

A high level of demand in recent years for mathematically trained workers has made it relatively easy for them to change employment, as well as to make initial entry into the field. Young workers--broadening their experience and



searching for positions offering good incomes and the best opportunities for using their abilities--changed jobs more frequently than employees with long experience. Job changing was also more frequent among holders of advanced degrees than among persons with less education, reflecting the better opportunities for the well trained to improve their employment status.

Organizational Unit

The organizational units in which survey respondents were working in 1960 reflected both the old and the new environment of mathematical employment. More than 40 percent of the respondents were working in computing laboratories, mathematics units, and operations research units--types of organizations which, except for a few pioneering groups, were not in existence prior to World War II. In research laboratories, engineering units, and statistical units, mathematical work has long had an important role; in recent years, the employment of persons whose major training is in mathematics has also been increasing in these units.

One of the great stimulants to the recent growth of mathematical employment has been the increasing use of high speed electronic data computers in industry and Government. Almost one-fourth of the survey respondents were working in computing laboratories in 1960 (table 4). In addition, mathe-

Mathematically trained workers use electronic computers to help solve problems

matical employment has been generated in other types of organizational units because the speed of electronic computers makes possible the solution of problems which could not be solved economically by previous methods. Some persons are employed to set up the problems to be solved by electronic computers; others translate the information into code for processing (programming) and may operate the equipment.

Although highly trained mathematicians assist in designing computers and make use of the machines to solve complex problems, the majority of persons working directly in computer units are young graduates with only the bachelor's degree. Research laboratories and operations research units employ a relatively high proportion of persons with advanced degrees. However, only a few persons with advanced degrees, particularly at the Ph. D. level, are employed in production, administrative, and engineering units or in computing laboratories.

Operational Status

About one-fourth of all survey respondents were either administrators or supervisors. As indicated in the tabulation below, the majority of all others--the practitioners--were working as members of a group, either with other mathematicians or in a team made up mostly of nonmathematicians. In the insurance industry, an unusually high proportion of the mathematical workers were in administrative or supervisory positions--28 percent were administrators, and 30 percent were supervisors.

Table 4. Mathematical employment, by type of organizational unit, 1960

Organizational unit	Number	Percent of total
All units	[1]9,929	100.0
Computing laboratory	2,288	23.0
Engineering unit	1,514	15.2
Mathematics unit	1,229	12.4
General technical staff	956	9.6
Research laboratory	875	8.8
Operations research unit	791	8.0
Statistical unit	781	7.9
Administration unit	358	3.6
Production unit	167	1.7
Other	970	9.8

[1]Excludes 53 persons who did not specify organizational unit.

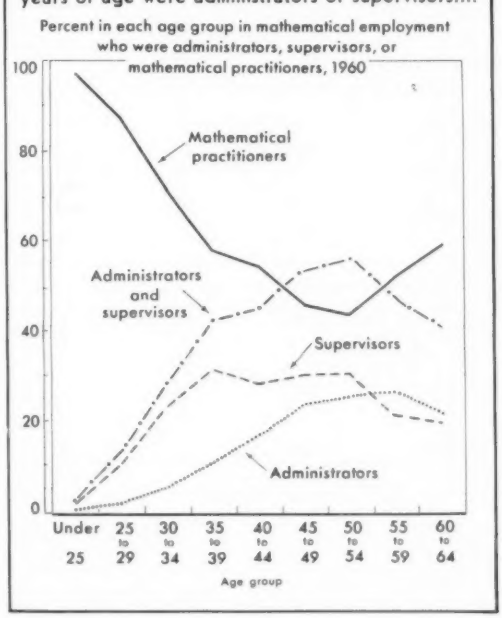
The proportion of persons who were supervisors increased up to age 39--from 2 percent of those under 25 years of age to 32 percent of the group aged 35 to 39--remained fairly stable through age 54, and then dropped in the older age groups (chart 2). Similarly, the proportion who were administrators increased up to age 49, then--although rising somewhat--became relatively stable, and finally declined, after age 59. There was some evidence that the pattern in the oldest age groups was influenced by the fact that the more experienced and capable supervisors are promoted to executive positions, which many employers did not consider within the scope of the survey.

Income from Mathematical Employment

The average (median) income of persons in mathematical employment in

Operational status	Percent
Total	100.0
Administrator	7.3
Supervisor	18.5
Mathematical practitioner	65.5
Working primarily with other mathematicians	23.8
Working as a member of a team made up mostly of nonmathematicians	18.1
Working individually with little or no consultation with others	13.0
Working as an individual consultant to others	10.6
Other	8.7

Chart 2. The majority of respondents 45-54 years of age were administrators or supervisors....



industry and Government was $8,500 in 1960. The middle 50 percent of the salaries ranged from about $7,000 to $11,000. Only 2 percent of the respondents earned less than $5,000, and nearly 7 percent earned $15,000 or more. Average incomes were highest for groups with advanced degrees, for those in the older (but not oldest) age groups, for men employees, and workers in private industry--especially the insurance industry.

In general, the higher the educational attainment of respondents, the higher their earnings. Income for each educational level increased with age and experience throughout most of the working lives of the respondents, but average incomes of the oldest respondents were lower than the average for some of the younger age groups. This pattern may also have been influenced by the fact that many employers did not consider top-level executive positions within the scope of the survey. Women had lower incomes, on the average, than men in the same education and age group (chart 3).

Average (median) annual income for men with doctor's degrees was $13,000--30 percent above the average for men with master's degrees and about 60 percent higher than for holders of bachelor's degrees. Incomes of women were also markedly higher for those with graduate degrees (table 5). Men who had not earned a degree had the lowest incomes, on the average, in all age groups.

The incomes of women just beginning work were only moderately lower than men's starting incomes, but the gap widened in the older age groups. Average income for women under age 30, with bachelor's degrees, was only 9 percent below that for men in the same age and education group; but in the 45- to 49-age group, the average income for women was only two-thirds that for men.

Incomes from mathematical employment in the insurance industry were, on the average, much higher than those in other areas of employment. Median incomes were higher in private indus-

Chart 3. Average (median) incomes of men and women in mathematical employment, by age, and educational level, 1960....

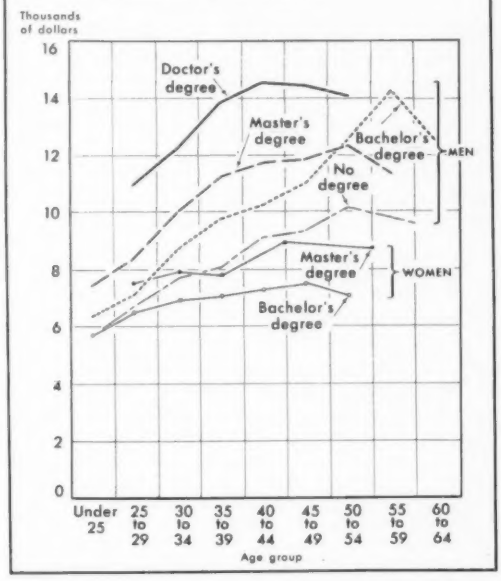


Table 5. Median annual incomes of men and women in mathematical employment, by educational level, 1960

Educational level	All respondents	Men	Women
All educational levels	$8,500	$8,900	$6,600
Doctor's degree	13,000	13,100	11,000
Master's degree	9,900	10,100	8,000
Bachelor's degree	7,700	8,100	6,500
No degree	7,900	8,000	6,400

try than in Government for persons at all degree levels.

The outstanding feature of the income pattern in the insurance industry was the proportion of employees with high incomes regardless of educational attainment. About 30 percent had annual incomes of $15,000 or more, and 15 percent had incomes of $20,000 or more. Many of the respondents from the insurance industry were Associates or Fellows of a professional actuarial society, having successfully completed a series of comprehensive examinations on actuarial work. In this industry, recognition as an Associate or Fellow is undoubtedly more significant than a college degree in determining income. The relatively sharp climb in income from age 45 to age 59 for men with bachelor's degrees is related to the number of older respondents with this educational attainment who were employed in the insurance industry, where incomes were high. More than 70 percent of the respondents from insurance companies indicated they were concerned with actuarial work, and 9 percent were either vice presidents or assistant vice presidents of their companies.

For persons at each degree level, average incomes in private industry, excluding insurance, were higher than the incomes of Government employees, particularly in the older age groups. No formal limit exists for salaries in private industry. At the time of the 1960 survey, however, the maximum salary for civil service jobs was $17,500 a year. Less than 1 percent of Government employees, but nearly 6 percent of private industry employees (excluding insurance) reported annual incomes of $15,000 or more.

EMPLOYMENT OUTLOOK FOR LANDSCAPE ARCHITECTS*

by Theresa R. Shapiro

Landscape architects plan the arrangement of outdoor areas for people to use and enjoy. Parks and gardens, scenic roads and housing projects, campuses and country clubs reflect their skill in designing landscapes which are both useful and pleasing. Because of their knowledge of site planning, landscape architects may serve many different types of clients; for example, a school board planning a new high school, a manufacturing concern wishing to fit its factory into a suburban area attractively, a homeowner wishing to improve his grounds, a government agency desiring a master plan for a military site, a city preparing to build an airport, or a real estate firm embarking on a new suburban development.

Nature of Work

The landscape architect may plan the entire arrangement of a site and supervise the grading, construction, and planting required to carry out the landscape plan. Whether he performs all or only part of these services on a particular project, however, depends on the client's wishes and the funds available.

A landscape architect asked by his client to plan a site begins by studying the nature and purpose of the project and the various types of structures needed. Next, he studies the site itself, observing and mapping such features as the slope of the land and the position of existing buildings and trees. He also considers the views, what parts of the site will be sunny or shaded at different times of day, the structure of the soil, existing utilities, and many other factors. Then, after consultation with the architect and engineer working on the project, he draws up preliminary plans for the development of the site. After the client approves the preliminary plans, working drawings are made which show all existing and proposed features, such as buildings, roads, walks, terraces, and grading and drainage structures in planted areas. In addition, the landscape architect outlines in detail the methods of constructing such features as walks and terraces, and draws up lists of materials to be used. Landscape contractors are then invited to submit bids for the work.

Firms of landscape architects usually handle a wide variety of assignments. Some, however, specialize in such projects as parks and playgrounds, campuses, hotels and resorts, shopping centers, roads, or public housing.

Where Employed

About 4,000 landscape architects were employed in mid-1961. The majority were either in business for themselves or worked for other landscape architects in private firms. Most of the remainder--about a third of all landscape architects--were employed by government agencies concerned with public housing, city planning, or parks and recreational areas. Some were on the staffs of architectural or engineering firms, while others were employed by landscape contractors or nurseries, and a few taught in colleges and universities.

Landscape architects are found in every State and in many small towns as well as big cities. The largest numbers are in the most highly populated States. California, with a large population, a high per capita income, and a mild climate, has more landscape architects than any other State.

*This article is one of a series of reports on fields of work which were not covered in the 1961 edition of the Occupational Outlook Handbook. It is part of the Bureau's continuing program of occupational outlook research.

Landscape architects may plan the entire site for an area redevelopment project

Training, Other Qualifications, and Advancement

A bachelor's degree from a college or university which offers professional training in landscape architecture is usually the minimum requirement for entering the profession. Such training is offered in at least 20 colleges and universities, of which 16 have been accredited by the American Society of Landscape Architects. The curriculum for the bachelor's degree requires 4 to 5 years of study, depending on the institution. A few universities also offer master's degrees in landscape architecture.

Entrance requirements for the landscape architecture course are usually the same as those established for admission to the liberal arts college of the same university. In addition, some schools require completion of a high school course in mechanical or geometrical drawings, and most schools advise high school students considering a career in landscape architecture to take courses in art as well as more mathematics than the minimum required for college entrance.

Courses in design, including architecture and drawing as well as landscape design, constitute over half of the typical curriculum in landscape architecture. Other major fields of study are civil engineering and horticulture. In addition, courses in English, science,

the social sciences, and mathematics are usually required for graduation. A bachelor's degree in landscape architecture provides a good background for graduate work in city planning.

Young people thinking of becoming landscape architects should be interested in both art and nature, for the profession demands a talent for design and an understanding of plant life, as well as technical ability. Successful practice as an independent landscape architect also requires a good business sense and the ability to deal with people.

It is usually recommended that students of landscape architecture work in landscape architects' offices or for landscape contractors during their summer vacations. Summer work helps the student to discover what phases of landscape architecture interest him most and may enable him to get a better than average job and salary upon graduation.

New graduates usually begin as junior draftsmen, assigned to tracing drawings and other simple drafting work. As their skill increases, they are entrusted with more responsible work. After 2 or 3 years, they can usually advance to positions as senior draftsmen, qualified to carry a design through all its stages from preliminary sketches to finished working drawings. Experienced draftsmen are often expected to handle other aspects of landscape architects' work also, such as preparing specifications and detailing methods of construction. An employee who demonstrates ability for all phases of the work may be made an associate of the firm. Other landscape architects who have progressed this far in their careers often open their own offices.

A license is required for the independent practice of landscape architecture in six States--California, New York, Virginia, Georgia, Oregon, and Louisiana. Candidates for the licensing examination are required to have 6 to 8 years' experience in the field, or a degree from an accredited school of landscape architecture plus 2 to 4 years' experience.

Employment Outlook

Employment opportunities for graduates with professional training in landscape architecture are expected to be good through the mid-1960's. In the long run, the profession will probably continue to expand, as a result of the continued growth of metropolitan areas with their needs for parks and recreational areas, the requirements of a growing population for outdoor recreational facilities, the continued increase in public construction, including public housing, and the rising interest in city and regional planning. If, as in recent years, developers of new residential and commercial areas continue to offer planned recreational facilities and landscaping in order to compete successfully with existing areas, opportunities for landscape architects may increase sharply.

In some parts of the country, the expected increase in homeownership coupled with rising per capita incomes and living standards will also spur the demand for landscape architects. However, in other areas, especially in the northern and eastern parts of the country, these factors are likely to have much less effect, since homeowners in these areas generally choose the services of landscape gardeners and nurserymen, instead of landscape architects, in planning and improving their grounds.

Women can freely enter training for landscape architecture and represent about 10 to 15 percent of all landscape architects, but only about 1 percent of the Nation's registered architects are women. Well-trained and competent women landscape architects can look forward to interesting and worthwhile careers in the field, chiefly as specialists in garden and planting design.

Earnings and Working Conditions

Starting salaries in private industry for new graduates in landscape architecture ranged from about $90 to $130 a week in 1961, according to the limited information available. The relatively higher salaries generally were

paid to graduates who had gained experience in summer jobs in landscape architecture firms. Some firms start inexperienced landscape architects at about $75 a week and advance them after a few months to higher salaries as they gain experience. Experienced landscape architects employed by private firms typically earned from $7,000 to $8,000 a year, though it was not unusual for especially well-qualified people to receive annual salaries of $10,000 or more.

Landscape architects in independent practice often earn more than salaried employees with considerable experience, but their earnings vary widely and may fluctuate from year to year. In recent years, earnings for this segment of the profession have tended to range from $6,000 to $15,000 a year, with some people of exceptional ability and established reputation making $25,000 a year or even more.

The entrance salary for newly graduated landscape architects in the Federal Civil Service was either $5,335 or $6,345 a year in 1961, depending on individual qualifications. In addition, the salary schedule provides for periodic increases above this amount. A large majority of experienced landscape architects in the Federal Government earn $7,560 or more a year; a few earn $14,000 or more.

Salaried employees in both the government and in landscape architectural firms usually work regular hours. Self-employed persons often work long hours, especially in the planting season. Salaried employees in private firms may also be asked to work overtime in the seasonal rush periods.

PUBLIC HEALTH TRAINING FOR STUDENTS

One hundred sixty-seven students from seventy-four 4-year professional schools were receiving special training as of August 1961 under the Commissioned Officer Student Training and Extern Program (COSTEP) of the U.S. Public Health Service. During their training, they assisted with radiological health surveys, mental hygiene work, communicable disease eradication, water pollution control, dental research, and other public health activities.

Assignments under COSTEP are open each year to medical, dental, engineering, science, nursing, and veterinary students who complete either their second or third year of professional education on or before July 1 and are interested in eventual careers in the Service's Commissioned Corps. Students selected for COSTEP are commissioned in grades equivalent to Second Lieutenant in the Army. They are then placed on active duty for a period not to exceed 120 days. Opportunities for either medical or dental internships or active duty upon graduation are also available to qualified students.

The largest number of students under COSTEP serve during the summer months. However, the program is open the year round, and students attending schools operating on the quarter system may apply throughout the year. A student should apply for an assignment at least 120 days before the date he will be available. Further information and special application forms are available from the Surgeon General, U.S. Public Health Service, Washington 25, D.C.

COLLEGE DEGREES NEAR ALLTIME HIGH IN 1959-60*

The Nation's colleges and universities granted 479,215 degrees during the 1959-60 academic year, according to the annual survey of earned degrees recently completed by the U.S. Office of Education. This number, the second highest mark in history, was 3.3 percent above the 1958-59 total, and only about 4 percent below the alltime high of 498,586 reached in 1949-50 following the peak enrollments generated by the post-World War II educational program for veterans.

At the bachelor's and first professional level, 394,889 degrees were conferred during the 1959-60 academic year--an increase of 2.5 percent over the preceding year. At the master's and second-degree level, the number granted reached a recordbreaking 74,497, an advance of 7.2 percent over 1958-59. The number of doctorates also reached a new high--9,829, or 5.0 percent more than in the previous year.

Comparable data now being collected for the 1960-61 academic year indicate that the number of bachelor's degrees, which has increased for 5 consecutive years, may have continued to rise, although the total is not expected to top the 1949-50 high of about 434,000 for at least another 2 or 3 years. New recordbreaking totals of 78,000 master's degrees and 10,500 doctorates are also tentatively forecast for 1960-61.

The largest numbers of degrees granted in 1959-60 at both the bachelor's and first professional and the master's levels were in the subject fields of education, the social sciences, business and commerce, and engineering. Almost 3 out of 5 students who received first-level degrees majored in these fields, as well as more than two-thirds of those granted master's degrees. The field of education alone accounted for 23 percent of the first-level degrees and 45 percent of the second-level ones. These figures, however, do not represent the full proportion of students taking degrees as preparation for teaching. The majority of the advanced degrees offered in education are in nonteaching specialties such as school administration, whereas many graduate students planning teaching careers major in their subject-matter field--for example, one of the social sciences or business and commerce--rather than in education.

The largest numbers of doctoral degrees granted in 1959-60 were in the physical sciences, education, the social sciences, and the biological sciences. These four fields accounted for about three-fifths of all doctorates earned.

The proportion of degrees earned by men and by women has remained about the same for several years. Again in 1959-60, men earned about two-thirds of the bachelor's degrees, more than two-thirds of the master's, and nine-tenths of the doctorates. There are, nevertheless, several subject fields in which women generally receive most of the degrees granted. At the bachelor's level, these fields include education, English and journalism, fine and applied arts, foreign languages and literature, nursing, home economics, and library science. Women also earned practically all degrees granted in nursing, home economics, and library science at the master's level, as well as 34 of the 40 doctoral degrees granted in home economics.

The accompanying table presents comparable data for 1959-60 and 1958-59 on degrees granted to men and women by major fields of study.

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*Based on data from the "Advance Report: Survey of Earned Degrees Granted During Year 1959-60," which contains a summary of current trends and detailed data on degrees earned from July 1, 1959, through June 30, 1960, in 160 fields. This report was prepared by, and is available upon request from, the Office of Education, U.S. Department of Health, Education, and Welfare, Washington 25, D.C.

Earned degrees conferred in the United States, by field of study, level of degree, and sex,[1] 1959-60 and 1958-59--Continued

Field of study	Total		Men		Women	
	1959-60	1958-59	1959-60	1958-59	1959-60	1958-59
	Second level (master's, except first professional)[9]					
Mathematical subjects	1,765	1,499	1,428	1,188	337	311
Philosophy	383	363	335	331	48	32
Physical sciences[7]	3,387	3,179	3,060	2,909	327	270
Psychology	1,406	1,254	981	857	425	397
Religion	1,331	1,189	1,124	951	207	238
Social sciences[8]	5,998	5,490	4,765	4,368	1,233	1,122
Arts, general	27	73	15	55	12	18
Sciences, general	394	352	320	267	74	85
Arts and sciences, general	83	82	62	48	21	34
All other	128	87	94	76	34	11
	Doctor's (Ph.D., Ed.D., etc.)					
Total	9,829	9,360	8,801	8,371	1,028	989
Agriculture	411	343	404	336	7	7
Architecture[3]	17	3	17	3	----	----
Biological sciences[4]	1,205	1,045	1,086	933	119	112
Business and commerce	135	137	133	133	2	4
Education	1,590	1,614	1,281	1,297	309	317
Engineering	786	714	783	713	3	1
English and journalism	405	382	321	317	84	65
Fine and applied arts	292	276	238	233	54	43
Foreign languages and literature	229	241	166	182	63	59
Forestry	29	33	29	32	----	1
Geography	68	51	64	43	4	8
Dentistry (D.D.S. and D.M.D. only)	----	----	----	----	----	----
Medicine (M.D. only)	----	----	----	----	----	----
Nursing[5]	----	----	----	----	----	----
Pharmacy[6]	51	64	50	64	1	----
Other health professions	56	89	49	81	7	8
Home economics	40	26	6	4	34	22
Law (LL.B., J.D., or higher degrees)	24	28	24	26	----	2
Library science	19	6	17	4	2	2
Mathematical subjects	303	282	285	267	18	15
Philosophy	137	100	112	90	25	10
Physical sciences[7]	1,838	1,812	1,776	1,743	62	69
Psychology	641	635	544	537	97	98
Religion	276	264	265	250	11	14
Social sciences[8]	1,237	1,187	1,117	1,058	120	129
Arts, general	3	2	2	2	1	----
Sciences, general	2	6	2	6	----	----
Arts and sciences, general	8	1	7	1	1	----
All other	27	19	23	16	4	3

[1]Data cover the entire United States (50 States and the District of Columbia) and outlying parts.

[2]Includes such first professional degrees as M.D., LL.B., D.D.S., and B.D. Also includes certain master's degrees when they constitute the first professional degree offered in a field. (See footnote 9.)

[3]Excludes architectural engineering which is included under Engineering.

[4]Excludes psychology which is listed separately.

[5]Includes public health nursing; excludes nursing education which is included under Education.

[6]Excludes pharmacology which is included under Biological sciences.

[7]Excludes geography which is listed separately.

[8]Excludes geography, philosophy, and psychology, which are each listed separately.

[9]Includes degrees beyond the bachelor's or first professional level, but below the doctorate. Excludes certain master's degrees when they constitute the first professional degree in a field--e.g., Master of Library Science, Master of Social Work, Master of Business Administration. (See footnote 2.)

Source: Office of Education, U.S. Department of Health, Education, and Welfare.

Earned degrees conferred in the United States, by field of study, level of degree, and sex,[1] 1959-60 and 1958-59

Field of study	Total		Men		Women	
	1959-60	1958-59	1959-60	1958-59	1959-60	1958-59
	Bachelor's and first professional[2]					
Total	394,889	385,151	255,504	254,868	139,385	130,283
Agriculture	4,898	5,421	4,805	5,348	93	73
Architecture[3]	1,801	1,713	1,744	1,639	57	74
Biological sciences[4]	15,655	15,149	11,693	11,503	3,962	3,646
Business and commerce	51,522	53,108	47,629	49,285	3,893	3,823
Education	90,179	87,877	26,178	26,448	64,001	61,429
Engineering	37,808	38,134	37,663	38,013	145	121
English and journalism	22,456	20,767	9,001	8,896	13,455	11,871
Fine and applied arts	13,166	12,722	6,141	6,131	7,025	6,591
Foreign languages and literature	5,498	4,767	2,098	1,865	3,400	2,902
Forestry	1,437	1,346	1,437	1,344	----	2
Geography	973	903	858	775	115	128
Dentistry (D.D.S. and D.M.D. only)	3,247	3,150	3,221	3,136	26	14
Medicine (M.D. only)	7,074	6,868	6,680	6,494	394	374
Nursing[5]	6,661	6,291	81	69	6,580	6,222
Pharmacy[6]	3,492	3,814	3,076	3,414	416	400
Other health professions	4,083	4,165	2,112	2,231	1,971	1,934
Home economics	4,450	4,490	60	42	4,390	4,448
Law (LL.B., J.D., or higher degrees)	9,314	9,925	9,073	9,661	241	264
Library science	1,938	1,756	467	455	1,471	1,301
Mathematical subjects	11,437	9,019	8,312	6,504	3,125	515
Philosophy	3,466	3,154	3,052	2,782	414	372
Physical sciences[7]	16,057	15,360	14,041	13,694	2,016	1,766
Psychology	8,111	7,383	4,785	4,477	3,326	2,906
Religion	9,002	8,810	7,563	7,451	1,439	1,359
Social sciences[8]	51,802	49,740	35,801	35,479	16,001	14,261
Arts, general	1,119	1,261	769	929	350	332
Sciences, general	2,151	1,945	1,715	1,539	436	406
Arts and sciences, general	1,246	1,496	787	930	459	566
All other	4,846	4,517	4,662	4,334	184	183
	Second level (master's, except first professional)[9]					
Total	74,497	69,497	50,937	47,321	23,560	22,176
Agriculture	996	1,014	984	997	12	17
Architecture[3]	319	290	305	286	14	4
Biological sciences[4]	2,154	2,002	1,668	1,543	486	459
Business and commerce	4,643	4,436	4,476	4,282	167	154
Education	33,512	31,569	18,126	16,954	15,386	14,615
Engineering	7,159	6,753	7,133	6,729	26	24
English and journalism	3,192	2,798	1,670	1,463	1,522	1,335
Fine and applied arts	2,892	2,661	1,763	1,604	1,129	1,057
Foreign languages and literature	1,134	1,066	593	556	541	510
Forestry	207	169	206	169	1	----
Geography	206	181	177	152	29	29
Dentistry (D.D.S. and D.M.D. only)	----	----	----	----	----	----
Medicine (M.D. only)	----	----	----	----	----	----
Nursing[5]	599	516	14	6	585	510
Pharmacy[6]	131	122	120	111	11	11
Other health professions	1,142	1,144	941	901	201	243
Home economics	484	507	11	11	473	496
Law (LL.B., J.D., or higher degrees)	520	496	496	481	24	15
Library science	305	205	70	26	235	179

See footnotes at end of table.

EARNINGS IN 82 MAJOR LABOR MARKET AREAS, 1960-61

Earnings of office and plant workers in 82 major labor market areas were surveyed between August 1960 and June 1961 by the Bureau of Labor Statistics in its annual series of occupational wage surveys. The areas studied in 1960-61 numbered 22 more than in 1959-60 and approximately four times the number studied in 1958-59. This greatly increased coverage provides counselors, students, and analysts with a broader basis for comparing average earnings in a number of jobs in many different parts of the country.

Earnings information was collected for selected occupations common to six broad industry groups--manufacturing; transportation, communication, and other public utilities; wholesale trade; retail trade; finance, insurance, and real estate; and services. The occupations surveyed, according to a uniform set of job descriptions, included selected office clerical, professional and technical, maintenance, powerplant, custodial, and material movement jobs.

Occupational wage rates and supplementary benefits have advanced continuously over the years since the Bureau's community wage survey program began in 1950. Levels of wage rates have risen, the nature of supplementary wage benefits have improved, and these benefits have tended to spread throughout the labor markets studied.

Average hourly and weekly earnings for key occupations in the 82 labor markets surveyed are presented in the accompanying tables. Pay rates for a single occupation, of course, differed widely among and within geographic areas, industry groups, and even within individual establishments. For example, both the highest and lowest average weekly earnings in the 82 areas for men accounting clerks (class A) were reported within the Southern Region--$134 in the Beaumont-Port Arthur, Tex., area and $77.50 in Raleigh, N.C. Even within the same State, the averages for these workers ranged from the high in Beaumont-Port Arthur to a low of $84.50 in San Antonio.

An analysis of the 1960-61 survey data indicate that pay levels for office workers and for workers in maintenance, powerplant, custodial, and material handling jobs tended to be highest in the larger West Coast and North Central areas studied. Average earnings also tended to be higher in manufacturing than in nonmanufacturing industries; however, each of these groups includes a wide variety of industries and establishments that differ in the level of rates paid.

Separate bulletins (listed below) have been issued for each of the 82 areas surveyed and may be purchased from the Superintendent of Documents, Washington 25, D.C., or from any of the BLS regional offices listed on page 2. Each of these reports contains data on average earnings by occupation and distribution of workers by earnings. Whenever possible, they also contain separate data for the major industry groups included in the study. Summaries of work schedules, shift differentials, and supplementary wage benefits (such as paid holidays and vacations and health, insurance, and pension plans) are also presented for areas where this information was collected. This supplementary information, obtained biennially for most of the major labor markets surveyed, was collected in 42 of the areas studied during 1960-61.

Labor market	Survey date	BLS bulletin number	Price
Akron, Ohio	June 1961	1285-81	20¢
Albany-Schenectady Troy, N.Y.	Mar. 1961	1285-51	20¢
Albuquerque, N. Mex.	May 1961	1285-61	20¢
Allentown-Bethlehem-Easton, Pa.-N.J.	Feb. 1961	1285-47	20¢
Atlanta, Ga.	May 1961	1285-73	20¢
Baltimore, Md.	Dec. 1960	1285-34	20¢
Beaumont-Port Arthur, Tex.	May 1961	1285-75	20¢
Birmingham, Ala.	Apr. 1961	1285-53	20¢
Boise, Idaho	May 1961	1285-62	20¢
Boston, Mass.	Oct. 1960	1285-15	25¢
Buffalo, N.Y.	Dec. 1960	1285-31	25¢
Burlington, Vt.	Mar. 1961	1285-57	20¢
Canton, Ohio	Dec. 1960	1285-29	20¢
Charleston, W. Va.	Apr. 1961	1285-60	20¢
Charlotte, N.C.	Apr. 1961	1285-58	20¢
Chattanooga, Tenn.-Ga.	Sept. 1960	1285-14	25¢
Chicago, Ill.	Apr. 1961	1285-66	25¢
Cincinnati, Ohio-Ky.	Mar. 1961	1285-59	20¢
Cleveland, Ohio	Sept. 1960	1285-11	25¢
Columbus, Ohio	Jan. 1961	1285-38	25¢
Dallas, Tex.	Nov. 1960	1285-21	25¢
Davenport-Rock Island-Moline, Iowa-Ill.	Oct. 1960	1285-16	25¢
Dayton, Ohio	Jan. 1961	1285-41	20¢
Denver, Colo.	Dec. 1960	1285-27	20¢
Des Moines, Iowa	Feb. 1961	1285-43	20¢
Detroit, Mich.	Jan. 1961	1285-37	25¢
Fort Worth, Tex.	Nov. 1960	1285-23	25¢
Green Bay, Wis.	Aug. 1960	1285-2	20¢
Greenville, S.C.	Apr. 1961	1285-63	20¢
Houston, Tex.	May 1961	1285-78	20¢
Indianapolis, Ind.	Dec. 1960	1285-28	20¢
Jackson, Miss.	Feb. 1961	1285-42	20¢
Jacksonville, Fla.	Dec. 1960	1285-30	25¢
Kansas City, Mo.-Kans.	Nov. 1960	1285-18	20¢
Lawrence-Haverhill, Mass.-N.H.	June 1961	1285-79	20¢
Little Rock-North Little Rock, Ark.	Aug. 1960	1285-6	25¢
Los Angeles-Long Beach, Calif.	Mar. 1961	1285-52	25¢
Louisville, Ky.-Ind.	Feb. 1961	1285-49	25¢
Lubbock, Tex.	May 1961	1285-67	20¢
Manchester, N.H.	Aug. 1960	1285-1	20¢
Memphis, Tenn.	Jan. 1961	1285-35	20¢
Miami, Fla.	Dec. 1960	1285-33	20¢
Milwaukee, Wis.	Apr. 1961	1285-64	25¢
Minneapolis-St. Paul, Minn.	Jan. 1961	1285-39	25¢
Muskegon-Muskegon Heights, Mich.	May 1961	1285-69	20¢
Newark and Jersey City, N.J.	Feb. 1961	1285-40	20¢
New Haven, Conn.	Feb. 1961	1285-46	20¢
New Orleans, La.	Mar. 1961	1285-48	25¢
New York, N.Y.	Apr. 1961	1285-65	25¢
Norfolk-Portsmouth and Newport News-Hampton, Va.	June 1961	1285-82	25¢
Oklahoma City, Okla.	Aug. 1960	1285-3	25¢
Omaha, Nebr.-Iowa	Oct. 1960	1285-13	25¢
Paterson-Clifton-Passaic, N.J.	May 1961	1285-74	20¢
Philadelphia, Pa.	Nov. 1960	1285-24	25¢
Phoenix, Ariz.	Mar. 1961	1285-55	20¢
Pittsburgh, Pa.	Jan. 1961	1285-44	25¢
Portland, Maine	Nov. 1960	1285-19	20¢
Portland, Oreg.-Wash.	May 1961	1285-72	20¢
Providence-Pawtucket, R.I.-Mass.	May 1961	1285-70	25¢
Raleigh, N.C.	Sept. 1960	1285-5	25¢
Richmond, Va.	Dec. 1960	1285-26	20¢
Rockford, Ill.	May 1961	1285-68	20¢
St. Louis, Mo.-Ill.	Oct. 1960	1285-32	25¢
Salt Lake City, Utah	Dec. 1960	1285-37	25¢
San Antonio, Tex.	May 1961	1285-71	25¢
San Bernardino-Riverside-Ontario, Calif.	Sept. 1960	1285-4	20¢
San Francisco-Oakland, Calif.	Jan. 1961	1285-36	25¢
Savannah, Ga.	May 1961	1285-76	20¢
Scranton, Pa.	Aug. 1960	1285-8	25¢
Seattle, Wash.	Aug. 1960	1285-7	25¢
Sioux Falls, S. Dak.	Nov. 1960	1285-17	15¢
South Bend, Ind.	Mar. 1961	1285-54	20¢
Spokane, Wash.	May 1961	1285-77	25¢
Toledo, Ohio	Mar. 1961	1285-50	25¢
Trenton, N.J.	Dec. 1960	1285-25	25¢
Washington, D.C.-Md.-Va.	Nov. 1960	1285-22	25¢
Waterbury, Conn.	Mar. 1961	1285-56	15¢
Waterloo, Iowa	Nov. 1960	1285-20	20¢
Wichita, Kans.	Sept. 1960	1285-9	25¢
Wilmington, Del.-N.J.	Sept. 1960	1285-12	25¢
Worcester, Mass.	June 1961	1285-80	20¢
York, Pa.	Feb. 1961	1285-45	20¢

Table 1. Average weekly earnings[1] in 82 major labor markets for selected office occupations studied in 6 broad industry divisions, 1960-61

Labor market	Clerical (men)						Clerical (women)			
	Clerks, accounting		Clerks, payroll	Office boys	Tabulating-machine operators		Billers, billing-machine	Bookkeeping-machine operators		Clerks, order
	Class A	Class B			Class A	Class B		Class A	Class B	
Akron, Ohio	$121.00	$81.50	$88.50	$61.50	$110.50	$99.00	$72.00	$78.00	$60.50	$67.50
Albany-Schenectady-Troy, N.Y.	103.00	90.00	104.50	59.00	99.50	86.00	54.50	74.50	60.00	65.50
Albuquerque, N. Mex.	95.00	----	----	55.00	----	----	64.50	69.50	59.00	56.50
Allentown-Bethlehem-Easton, Pa.-N.J.	123.50	100.50	117.50	82.00	125.50	101.00	55.00	60.50	53.50	83.50
Atlanta, Ga.	101.00	83.00	94.50	57.50	99.00	83.50	67.00	71.00	65.50	64.00
Baltimore, Md.	106.50	87.00	112.00	53.00	102.50	84.50	64.00	75.00	54.50	62.50
Beaumont-Port Arthur, Tex.	134.00	96.50	130.00	69.00	127.50	114.50	----	80.50	56.00	----
Birmingham, Ala.	105.50	92.00	99.50	60.00	107.00	80.50	62.50	73.50	57.50	67.00
Boise, Idaho	----	----	----	----	----	----	----	71.50	55.00	----
Boston, Mass.	97.00	75.00	88.00	52.50	93.00	77.50	70.00	71.00	61.50	67.50
Buffalo, N.Y.	111.00	95.00	114.00	60.50	113.50	107.00	75.00	79.00	56.00	71.50
Burlington, Vt.	87.50	78.50	----	58.00	----	----	----	----	59.00	----
Canton, Ohio	117.50	112.50	108.00	69.00	----	98.00	64.00	----	50.00	----
Charleston, W. Va.	117.50	97.50	----	66.50	114.50	106.50	63.50	----	57.50	----
Charlotte, N.C.	104.00	95.00	89.50	57.50	109.00	80.50	58.50	68.00	56.50	66.00
Chattanooga, Tenn.-Ga.	97.50	----	----	55.50	105.00	73.00	----	72.50	52.50	62.00
Chicago, Ill.	107.50	87.50	97.00	63.50	110.00	91.50	76.50	87.50	74.50	74.50
Cincinnati, Ohio-Ky.	99.00	76.00	----	57.00	103.50	92.00	65.50	77.00	63.50	68.50
Cleveland, Ohio	108.50	89.00	98.00	65.00	114.50	98.50	71.00	86.50	65.50	72.50
Columbus, Ohio	98.50	80.00	92.00	59.00	106.50	91.00	66.50	73.00	59.00	72.50
Dallas, Tex.	102.50	85.50	87.50	52.50	97.50	82.50	67.00	73.50	61.50	63.00
Davenport-Rock Island-Moline, Iowa-Ill.	107.50	80.50	----	----	106.00	----	63.50	78.00	60.50	61.50
Dayton, Ohio	114.50	86.50	101.00	55.50	117.50	106.00	68.00	86.00	73.00	63.50
Denver, Colo.	97.50	83.00	91.50	56.50	101.00	86.00	69.00	77.50	62.00	64.50
Des Moines, Iowa	94.00	90.50	----	53.00	99.50	78.00	----	70.50	59.00	65.50
Detroit, Mich.	125.00	90.50	115.00	68.00	120.00	99.00	74.00	87.50	68.50	77.00
Fort Worth, Tex.	98.50	----	----	53.00	106.00	86.00	63.00	67.00	56.50	55.00
Green Bay, Wis.	104.50	----	----	----	----	----	----	----	54.00	----
Greenville, S.C.	92.50	----	----	----	----	76.00	57.50	----	55.50	56.00
Houston, Tex.	105.50	84.50	102.50	54.50	112.50	91.00	67.50	80.00	65.50	75.00
Indianapolis, Ind.	102.00	87.00	107.50	57.00	107.00	89.50	71.50	78.50	59.50	63.00
Jackson, Miss.	93.50	77.00	----	58.00	----	82.50	57.00	63.50	51.00	61.00
Jacksonville, Fla.	93.00	74.00	----	50.00	----	86.00	58.50	65.00	55.00	59.00
Kansas City, Mo-Kans.	101.00	80.50	90.00	52.50	106.50	90.00	71.50	81.00	62.00	70.00
Lawrence-Haverhill, Mass.-N.H.	83.50	----	----	----	82.00	77.50	58.50	----	56.00	77.00
Little Rock-North Little Rock, Ark.	86.50	61.00	85.50	----	----	82.50	46.00	63.50	59.50	----
Los Angeles-Long Beach, Calif.	107.00	85.50	108.50	69.00	110.50	97.00	76.00	92.00	69.00	86.50
Louisville, Ky.-Ind.	104.00	95.50	----	59.00	107.50	94.50	63.00	76.50	59.50	61.50
Lubbock, Tex.	88.00	----	----	----	----	----	----	68.00	55.00	56.50
Manchester, N.H.	----	----	60.50	----	----	63.00	53.00	----	58.50	----
Memphis, Tenn.	99.00	83.50	----	52.00	104.00	83.00	60.00	----	54.00	64.00
Miami, Fla.	95.50	78.00	83.00	54.50	99.00	85.50	64.00	68.00	59.00	66.00
Milwaukee, Wis.	112.50	88.00	103.00	61.00	112.00	92.50	69.00	81.00	68.50	64.00
Minneapolis-St. Paul, Minn.	99.50	78.00	93.00	58.00	102.50	86.50	62.00	76.00	61.50	67.50
Muskegon-Muskegon Heights, Mich.	113.00	----	----	----	----	88.50	----	75.00	60.50	----
Newark and Jersey City, N.J.	101.00	94.00	99.00	59.00	98.50	87.00	68.50	77.00	67.00	69.50
New Haven, Conn.	105.50	96.50	----	63.00	106.50	91.50	68.00	73.00	59.00	75.00
New Orleans, La.	95.50	69.00	93.50	52.00	101.50	83.00	64.00	70.50	57.00	58.00
New York, N.Y.	99.00	75.50	88.00	57.50	100.00	88.00	74.00	81.50	71.50	72.00
Norfolk-Portsmouth and Newport News-Hampton, Va.	104.50	----	----	60.50	----	----	----	69.50	53.50	59.50
Oklahoma City, Okla.	94.00	71.00	----	53.00	98.50	86.00	59.00	66.50	56.00	----
Omaha, Nebr.-Iowa	91.50	80.00	----	54.50	100.00	86.00	56.00	76.50	60.00	67.50
Paterson-Clifton-Passaic, N.J.	104.00	95.00	----	61.50	112.50	90.00	69.00	85.00	62.50	67.00
Philadelphia, Pa.	94.50	77.00	88.50	56.00	101.50	81.00	65.00	76.00	59.50	63.00	
Phoenix, Ariz.	99.50	78.00	----	55.50	----	----	63.00	81.00	58.50	65.50
Pittsburgh, Pa.	117.00	99.00	110.00	62.50	114.00	96.00	70.00	71.50	63.50	76.50
Portland, Maine	98.00	----	----	55.00	----	----	53.00	71.50	49.00	60.00
Portland, Oreg.-Wash.	109.50	91.50	91.00	59.00	118.00	100.00	71.50	82.00	67.50	75.50
Providence-Pawtucket, R.I.-Mass.	89.00	66.00	----	50.50	----	83.00	62.00	62.50	54.50	62.00
Raleigh, N.C.	77.50	66.00	----	51.00	----	86.50	----	67.00	55.50	----
Richmond, Va.	102.00	83.50	85.00	55.00	104.00	84.00	58.00	68.50	58.00	69.00
Rockford, Ill.	101.00	85.50	----	60.00	----	82.00	65.50	69.50	64.00	68.00
St. Louis, Mo.-Ill.	106.00	86.50	98.00	61.50	108.50	90.50	69.00	73.50	62.00	65.50
Salt Lake City, Utah	101.00	81.50	100.50	56.50	110.50	87.00	64.50	75.50	54.50	53.50
San Antonio, Tex.	84.50	74.00	----	47.50	----	----	55.00	65.50	49.50	----
San Bernardino-Riverside-Ontario, Calif.	101.50	----	----	----	----	101.50	64.00	83.50	60.00	----
San Francisco-Oakland, Calif.	104.50	96.00	110.00	64.00	112.50	97.50	87.00	88.50	68.50	83.00
Savannah, Ga.	110.00	85.00	98.50	64.50	----	----	----	----	52.00	----
Scranton, Pa.	----	----	----	58.00	----	81.50	59.00	71.00	53.50	55.50
Seattle, Wash.	103.50	95.50	95.00	62.00	----	95.50	75.00	78.00	64.00	76.00
Sioux Falls, S. Dak.	99.00	----	----	----	----	----	----	----	54.00	----
South Bend, Ind.	108.00	----	88.50	60.00	111.00	96.50	66.50	67.50	60.50	64.50
Spokane, Wash.	107.00	86.00	----	----	116.50	---	72.00	78.00	57.50	----
Toledo, Ohio	110.00	95.00	103.50	65.50	114.00	100.00	68.00	82.50	62.00	73.00
Trenton, N.J.	103.50	99.00	----	63.00	114.50	94.00	60.00	79.00	63.50	67.00
Washington, D.C.-Md.-Va.	97.00	78.00	----	55.50	----	85.50	60.50	78.00	63.00	64.50
Waterbury, Conn.	100.50	----	----	64.50	----	87.50	65.50	----	57.50	72.00
Waterloo, Iowa	115.50	----	----	----	----	----	----	79.00	52.00	----
Wichita, Kans.	94.00	74.50	----	65.50	----	89.00	60.50	----	55.50	----
Wilmington, Del.-N.J.	112.50	80.00	113.00	57.00	115.50	97.00	60.50	70.50	57.50	68.00
Worcester, Mass.	111.00	----	----	49.50	101.50	81.50	61.50	71.00	58.50	75.00
York, Pa.	99.00	74.50	81.00	----	110.50	----	62.00	65.00	55.00	61.50

See footnotes at end of table.

Table 1. Average weekly earnings[1] in 82 major labor markets for selected office occupations studied in 6 broad industry divisions, 1960-61--Continued

Labor market	Clerical (women)									
	Clerks, accounting		Clerks, file		Clerks, payroll	Comptometer operators	Key-punch operators	Office girls	Secretaries	Stenographers, general
	Class A	Class B	Class A	Class B						
Akron, Ohio	$91.50	$68.50	$71.00	$56.50	$86.50	$74.00	$81.50	$57.50	$97.00	$81.00
Albany-Schenectady-Troy, N.Y.	87.00	67.50	69.00	54.00	73.50	73.50	71.50	54.00	88.50	77.00
Albuquerque, N. Mex.	86.00	63.50	71.00	54.50	82.50	66.00	72.50	----	93.50	76.50
Allentown-Bethlehem-Easton, Pa.-N.J.	88.50	66.50	88.00	63.00	63.50	79.00	81.00	70.50	80.50	71.50
Atlanta, Ga.	87.50	67.00	71.00	52.50	76.50	73.00	72.00	53.50	86.50	74.50
Baltimore, Md.	82.00	66.00	67.50	52.00	73.00	75.00	68.00	54.00	85.00	71.00
Beaumont-Port Arthur, Tex.	96.00	78.00	92.50	62.50	85.50	73.50	78.00	----	100.50	85.50
Birmingham, Ala.	80.50	64.00	65.50	53.00	71.00	63.00	69.00	57.50	88.00	72.00
Boise, Idaho	76.00	62.00	----	51.50	73.00	----	61.00	----	82.50	67.00
Boston, Mass.	79.50	64.00	66.50	53.50	70.50	67.50	66.00	52.00	81.50	70.00
Buffalo, N.Y.	91.50	69.00	68.50	54.50	75.00	72.00	72.00	56.50	91.00	76.00
Burlington, Vt.	80.50	69.50	----	----	70.00	----	----	----	83.00	80.00
Canton, Ohio	79.50	77.00	----	58.00	76.50	66.50	72.50	----	85.00	71.00
Charleston, W. Va.	90.50	59.50	85.50	55.50	91.50	58.50	84.50	----	97.50	82.50
Charlotte, N.C.	69.50	64.00	66.50	50.00	65.50	63.50	62.50	50.00	76.00	63.50
Chattanooga, Tenn.-Ga.	76.00	61.00	56.50	48.00	65.00	----	55.50	48.00	76.50	66.50
Chicago, Ill.	92.50	74.50	74.00	62.50	83.50	78.00	77.00	62.00	95.00	80.50
Cincinnati, Ohio-Ky.	86.00	66.00	71.00	54.00	77.00	72.00	70.00	54.00	89.50	70.50
Cleveland, Ohio	89.00	73.50	77.00	59.00	82.50	75.00	78.50	59.00	95.50	80.00
Columbus, Ohio	82.00	64.50	71.50	55.50	73.50	71.50	66.50	51.50	84.00	75.50
Dallas, Tex.	80.50	64.00	61.50	50.00	74.00	67.50	65.50	52.00	84.00	73.50
Davenport-Rock Island-Moline, Iowa-Ill.	95.00	67.50	77.00	56.50	81.50	----	74.50	58.00	95.00	75.00
Dayton, Ohio	84.50	67.50	79.00	61.50	82.50	73.50	76.00	----	90.50	93.50
Denver, Colo.	82.00	68.00	67.00	54.50	77.00	69.00	69.50	52.00	88.50	75.50
Des Moines, Iowa	69.00	58.00	56.00	47.00	69.00	63.50	57.50	49.00	80.50	64.50
Detroit, Mich.	98.00	72.50	85.50	59.00	89.50	84.00	83.50	62.50	102.00	89.50
Fort Worth, Tex.	78.00	59.50	----	48.00	65.00	66.50	65.50	54.50	77.00	70.00
Green Bay, Wis.	77.50	61.50	----	----	69.50	----	53.00	----	81.00	66.00
Greenville, S.C.	70.50	54.00	50.50	46.50	58.50	----	53.00	----	72.00	64.00
Houston, Tex.	89.00	70.00	66.00	56.50	82.50	70.00	76.50	53.00	91.00	78.00
Indianapolis, Ind.	83.00	68.50	64.00	54.00	78.50	76.00	72.00	56.50	89.50	85.50
Jackson, Miss.	77.50	59.50	56.00	47.00	69.50	54.00	58.00	----	71.50	61.50
Jacksonville, Fla.	76.00	62.00	61.50	50.50	72.00	62.00	64.00	52.50	77.50	67.00
Kansas City, Mo.-Kans.	83.00	65.50	67.50	53.00	77.50	72.50	71.00	51.00	87.50	75.00
Lawrence-Haverhill, Mass.-N.H.	80.00	65.00	----	61.50	65.50	----	68.00	----	83.50	68.00
Little Rock-North Little Rock, Ark.	73.50	57.50	----	45.50	65.00	60.00	53.00	----	71.00	58.50
Los Angeles-Long Beach, Calif.	96.50	76.50	77.50	63.00	90.50	86.50	82.00	64.00	98.00	85.00
Louisville, Ky.-Ind.	85.50	63.00	77.50	51.50	70.50	68.50	69.00	52.50	84.00	76.00
Lubbock, Tex.	75.50	57.50	----	52.00	65.50	58.50	59.50	----	77.00	65.50
Manchester, N.H.	68.50	53.00	----	47.00	56.50	50.50	51.50	----	71.50	59.50
Memphis, Tenn.	76.00	60.00	61.50	51.50	65.50	60.00	63.50	51.50	74.50	66.50
Miami, Fla.	83.00	65.50	63.00	51.50	74.50	60.00	68.00	50.50	78.50	67.50
Milwaukee, Wis.	91.00	69.00	71.50	58.00	74.50	69.50	69.00	55.00	90.50	74.50
Minneapolis-St. Paul, Minn.	81.50	64.00	66.50	53.50	72.50	71.00	65.00	49.50	82.00	72.00
Muskegon-Muskegon Heights, Mich.	83.00	75.50	62.50	----	71.50	77.00	66.50	----	85.00	72.00
Newark and Jersey City, N.J.	89.00	69.50	69.00	55.50	78.50	76.50	69.00	59.00	92.00	75.50
New Haven, Conn.	92.50	67.50	74.00	53.50	74.50	78.50	73.50	62.00	89.50	74.00
New Orleans, La.	79.50	61.50	61.00	48.00	68.50	64.50	64.50	44.50	82.00	67.00
New York, N.Y.	91.50	72.00	71.00	59.50	82.50	77.00	71.00	52.00	95.00	76.50
Norfolk-Portsmouth and Newport New-Hampton, Va.	81.50	64.50	----	65.50	67.50	----	72.50	----	82.00	69.50
Oklahoma City, Okla.	81.00	59.50	62.00	47.50	70.50	64.00	62.00	43.00	78.50	67.50
Omaha, Nebr.-Iowa	79.00	65.50	----	54.50	74.00	79.00	63.50	54.50	88.00	73.00
Paterson-Clifton-Passaic, N.J.	94.00	69.50	68.50	55.00	77.50	73.50	72.50	61.50	89.50	74.00
Philadelphia, Pa.	80.00	63.50	69.00	52.00	72.00	68.50	65.50	52.00	88.50	71.50
Phoenix, Ariz.	85.00	67.00	----	55.50	72.50	68.00	71.50	----	82.50	73.00
Pittsburgh, Pa.	93.00	73.00	71.50	60.00	81.50	75.00	75.50	58.00	94.50	79.50
Portland, Maine	71.00	60.00	----	46.50	64.50	68.00	60.50	----	73.00	65.00
Portland, Oreg.-Wash.	86.00	71.50	75.00	56.00	81.50	77.00	74.00	52.50	88.00	77.00
Providence-Pawtucket, R.I.-Mass.	76.50	57.50	61.00	49.50	66.00	65.50	60.50	47.50	76.00	62.00
Raleigh, N.C.	69.00	57.50	55.00	46.00	66.00	54.00	59.00	----	75.00	60.50
Richmond, Va.	79.00	63.50	62.50	52.50	72.50	61.50	69.50	52.00	83.50	74.50
Rockford, Ill.	84.00	67.50	70.00	56.50	73.50	70.50	66.00	55.50	88.50	71.00
St. Louis, Mo.-Ill.	86.00	65.00	71.00	56.00	73.50	73.50	71.50	56.00	87.00	72.50
Salt Lake City, Utah	80.00	60.00	----	54.50	72.50	61.50	64.50	48.50	80.00	68.50
San Antonio, Tex.	74.50	56.50	----	47.00	63.50	64.00	55.00	----	73.00	66.00
San Bernardino-Riverside-Ontario, Calif.	85.00	70.00	----	62.00	74.50	----	85.50	----	89.00	78.50
San Francisco-Oakland, Calif.	91.50	76.50	82.00	60.50	91.50	83.50	78.50	62.50	96.50	84.00
Savannah, Ga.	83.50	59.00	----	52.00	82.50	----	71.00	----	86.00	78.00
Scranton, Pa.	82.50	68.00	----	53.50	54.00	72.00	71.50	----	72.00	62.00
Seattle, Wash.	85.00	73.00	81.50	61.00	80.00	76.50	74.50	56.50	92.50	80.00
Sioux Falls, S. Dak.	68.50	59.50	----	46.50	----	----	72.00	----	75.50	64.00
South Bend, Ind.	78.00	64.00	74.00	----	74.00	76.50	69.00	57.50	91.00	76.00
Spokane, Wash.	82.00	71.50	----	54.00	79.50	68.50	79.00	59.50	87.00	75.50
Toledo, Ohio	94.50	73.00	73.00	59.00	77.00	74.50	77.00	58.50	99.00	78.50
Trenton, N.J.	85.00	65.00	59.50	51.00	79.00	89.50	67.00	54.50	88.50	76.00
Washington, D.C.-Md.-Va.	82.00	67.00	66.00	54.00	79.50	72.00	70.50	54.50	89.00	80.50
Waterbury, Conn.	86.50	66.50	70.50	56.00	80.50	66.00	74.00	----	93.50	77.50
Waterloo, Iowa	99.00	65.00	----	60.00	84.00	----	----	----	93.00	77.00
Wichita, Kans.	84.00	71.00	----	57.50	83.50	72.00	79.50	54.00	89.50	81.50
Wilmington, Del.-N.J.	94.50	82.50	90.50	60.50	79.50	86.50	80.50	52.50	110.00	80.00
Worcester, Mass.	85.50	64.00	69.50	54.00	68.50	68.00	60.50	53.00	84.00	69.00
York, Pa.	81.00	58.00	----	49.00	69.00	----	69.00	----	86.50	67.50

See footnotes at end of table.

Table 1. Average weekly earnings[1] in 82 major labor markets for selected office occupations studied in 6 broad industry divisions, 1960-61--Continued

Labor market	Clerical (women)						Professional and technical			
	Stenographers, technical	Switchboard operators	Switchboard operator--receptionists	Transcribing machine operators, general	Typists		Draftsmen (men)			Nurses, registered industrial (women)
					Class A	Class B	Leader	Senior	Junior	
Akron, Ohio	----	$72.00	$68.50	$68.50	$73.50	$65.50	$158.50	$130.50	$102.00	$98.00
Albany-Schenectady-Troy, N.Y.	----	69.00	64.00	67.50	76.00	57.50	----	----	----	98.00
Albuquerque, N. Mex.	----	59.50	65.00	——	71.00	51.00	----	----	93.50	----
Allentown-Bethlehem-Easton, Pa.-N.J.	----	70.00	60.00	80.00	81.00	62.50	152.00	119.50	99.00	96.50
Atlanta, Ga.	$88.00	65.50	66.00	63.50	64.50	55.00	154.50	118.50	85.00	95.00
Baltimore, Md.	86.00	65.50	65.00	69.50	72.00	55.50	141.50	118.50	84.50	96.50
Beaumont-Port Arthur, Tex.	----	68.50	65.00	----	83.00	62.50	167.00	135.50	105.00	116.50
Birmingham, Ala.	----	64.00	64.50	59.50	67.50	53.50	161.50	131.50	93.00	97.00
Boise, Idaho	----	53.00	63.50	----	62.50	57.00	----	----	----	----
Boston, Mass.	74.50	67.00	65.50	65.00	67.50	58.00	154.50	125.50	94.50	87.50
Buffalo, N.Y.	89.50	72.50	69.50	67.00	74.00	59.50	167.50	130.50	98.00	100.50
Burlington, Vt.	----	57.50	61.50	----	----	56.50	----	126.50	91.00	----
Canton, Ohio	----	69.00	65.50	68.50	73.00	57.00	152.00	129.50	105.50	96.00
Charleston, W. Va.	----	66.50	66.00	61.00	84.00	61.00	----	147.50	111.00	105.50
Charlotte, N.C.	----	60.50	60.00	63.00	66.50	53.50	----	105.00	79.50	----
Chattanooga, Tenn.-Ga.	----	54.50	59.50	56.50	64.50	49.50	----	113.00	----	88.50
Chicago, Ill.	91.50	75.50	76.50	78.00	77.00	66.50	154.00	128.00	94.50	98.50
Cincinnati, Ohio-Ky.	----	71.00	69.00	65.00	70.00	60.50	144.50	122.00	99.50	99.50
Cleveland, Ohio	88.50	74.00	71.00	73.00	78.50	63.00	151.50	121.50	95.50	99.00
Columbus, Ohio	----	69.00	64.00	65.00	70.00	59.00	128.00	113.00	87.00	91.00
Dallas, Tex.	94.50	59.50	67.00	62.50	64.50	54.50	123.50	105.50	80.00	87.50
Davenport-Rock Island-Moline, Iowa-Ill.	----	60.50	60.00	----	81.50	64.50	----	111.50	94.50	99.50
Dayton, Ohio	----	66.00	69.50	67.50	83.00	66.00	140.50	130.50	112.00	101.00
Denver, Colo.	----	64.50	67.00	65.00	67.50	61.00	162.00	131.00	88.00	89.50
Des Moines, Iowa	----	58.50	60.50	56.00	59.50	50.50	----	108.50	78.50	92.50
Detroit, Mich.	104.00	79.50	74.50	73.00	89.50	71.00	172.50	148.00	113.50	106.50
Fort Worth, Tex.	----	61.00	59.00	55.00	63.50	51.00	----	101.00	77.00	103.50
Green Bay, Wis.	----	----	63.00	64.50	----	55.00	----	111.50	----	----
Greenville, S.C.	----	49.50	59.00	53.50	61.00	49.50	----	100.50	----	74.50
Houston, Tex.	96.50	69.50	67.50	67.00	68.50	59.00	139.50	112.00	83.50	107.00
Indianapolis, Ind.	82.50	63.50	64.00	63.50	75.50	58.50	125.50	125.00	95.00	100.00
Jackson, Miss.	----	49.00	55.50	----	58.00	53.50	----	99.50	70.50	----
Jacksonville, Fla.	----	53.00	59.50	61.00	59.00	52.00	----	112.00	82.50	----
Kansas City, Mo.-Kans.	75.50	63.00	66.00	63.00	73.00	57.50	150.00	114.50	93.50	95.00
Lawrence-Haverhill, Mass.-N.H.	----	66.00	59.50	----	64.00	58.00	----	101.50	----	84.00
Little Rock-North Little Rock, Ark.	----	54.00	55.00	46.00	60.00	45.50	----	----	67.00	----
Los Angeles-Long Beach, Calif.	93.00	79.50	78.50	74.50	81.00	70.00	155.00	120.00	93.00	104.00
Louisville, Ky.-Ind.	85.50	59.00	64.50	58.50	68.50	55.50	----	118.50	89.50	96.00
Lubbock, Tex.	----	51.00	52.50	----	60.50	----	----	----	65.00	----
Manchester, N.H.	----	56.50	53.50	52.50	55.50	50.00	----	103.00	----	----
Memphis, Tenn.	----	47.50	61.00	59.50	63.00	49.00	----	115.00	78.50	87.00
Miami, Fla.	83.50	57.00	59.50	----	67.50	54.50	----	114.00	88.00	82.50
Milwaukee, Wis.	74.00	69.50	69.00	68.00	75.00	61.50	155.50	123.00	101.00	94.00
Minneapolis-St. Paul, Minn.	71.00	66.00	65.00	64.00	67.00	58.00	139.00	113.00	88.50	92.50
Muskegon-Muskegon Heights, Mich.	----	60.00	65.50	----	81.00	58.50	----	115.50	93.50	86.50
Newark and Jersey City, N.J.	77.50	75.00	72.00	66.50	72.50	61.50	145.00	123.50	89.50	95.50
New Haven, Conn.	----	69.00	69.00	66.50	68.00	61.50	141.50	111.50	90.00	95.00
New Orleans, La.	----	52.50	63.00	61.00	65.50	54.50	----	123.50	87.50	99.50
New York, N.Y.	91.50	75.50	75.00	73.50	72.50	64.50	168.50	129.00	88.00	101.00
Norfolk-Portsmouth and Newport News-Hampton, Va.	----	54.00	61.00	71.00	67.50	56.50	----	----	----	----
Oklahoma City, Okla.	82.50	53.50	59.50	61.50	62.50	50.00	----	108.50	79.50	----
Omaha, Nebr.-Iowa	----	60.50	65.00	70.50	74.50	55.00	----	113.00	84.50	----
Paterson-Clifton-Passaic, N.J.	----	76.50	69.50	68.00	74.00	64.50	----	115.50	94.00	98.50
Philadelphia, Pa.	78.00	67.50	64.50	64.00	73.00	58.00	164.00	121.00	102.00	92.00
Phoenix, Ariz.	----	61.00	60.50	----	69.50	60.00	143.00	115.00	97.50	----
Pittsburgh, Pa.	85.50	76.00	72.00	68.00	77.00	65.00	166.00	136.50	102.00	101.00
Portland, Maine	----	52.50	55.50	52.50	59.00	49.50	----	----	----	78.50
Portland, Oreg.-Wash.	----	71.00	69.50	69.50	70.00	----	----	117.50	98.00	89.00
Providence-Pawtucket, R.I.-Mass.	----	56.00	60.50	60.00	60.00	50.50	----	108.00	87.00	78.00
Raleigh, N.C.	----	43.00	56.50	----	60.50	48.50	----	115.50	----	----
Richmond, Va.	----	64.00	64.00	63.50	64.50	56.00	----	126.50	----	98.50
Rockford, Ill.	----	68.00	68.50	69.00	67.50	59.00	138.50	116.50	90.00	83.50
St. Louis, Mo.-Ill.	74.50	67.50	68.00	69.00	72.00	59.00	159.50	123.00	95.50	93.50
Salt Lake City, Utah	----	60.50	64.00	65.00	64.00	55.50	----	107.50	87.00	----
San Antonio, Tex.	----	53.00	54.00	51.00	56.00	48.00	----	90.00	71.00	----
San Bernardino-Riverside-Ontario, Calif.	----	71.50	66.50	----	73.50	63.00	----	131.00	100.50	101.00
San Francisco-Oakland, Calif.	87.00	78.50	78.50	78.00	76.50	66.50	137.50	118.00	93.00	104.00
Savannah, Ga.	----	56.00	59.00	----	----	52.00	----	110.00	----	----
Scranton, Pa.	----	55.00	54.00	----	79.50	51.50	----	98.50	80.00	75.50
Seattle, Wash.	----	73.00	72.00	70.50	74.00	62.00	129.00	110.50	93.00	97.00
Sioux Falls, S. Dak.	----	----	----	----	----	53.50	----	----	----	----
South Bend, Ind.	----	69.50	65.50	64.50	79.50	58.00	----	135.50	100.50	95.00
Spokane, Wash.	----	72.50	64.50	----	68.00	71.00	----	----	----	----
Toledo, Ohio	86.50	77.00	71.00	64.50	76.50	64.50	----	127.00	109.00	97.50
Trenton, N.J.	74.00	61.00	67.50	67.00	72.00	60.00	170.50	124.50	97.50	90.00
Washington, D.C.-Md.-Va.	----	61.50	69.50	71.00	73.00	62.50	132.00	111.50	88.00	90.00
Waterbury, Conn.	95.50	74.50	65.00	69.50	74.50	63.00	----	121.50	91.00	96.50
Waterloo, Iowa	----	61.00	----	64.00	80.00	67.50	----	----	77.00	----
Wichita, Kans.	----	57.50	69.00	55.50	72.50	61.00	----	137.50	92.50	100.50
Wilmington, Del.-N.J.	89.50	79.00	66.50	70.00	84.00	63.00	----	120.00	104.50	104.50
Worcester, Mass.	----	66.00	62.50	64.50	66.00	56.50	147.50	106.00	87.00	88.50
York, Pa.	----	66.50	61.50	66.00	62.50	56.50	134.50		86.50	82.50

[1]Earnings of office workers relate to standard salaries that are paid for standard work schedules.

Note: Dashes indicate no data, data not available, or data that do not meet publication criteria.

Table 2. Average hourly earnings[1] in 82 major labor markets for men in selected occupations studied in 6 broad industry divisions, 1960-61

Labor market	Maintenance and powerplant							
	Carpenters	Electricians	Engineers, stationary	Firemen, stationary boiler	Machinists	Mechanics, automotive	Mechanics	Millwrights	Oilers
Akron, Ohio	$3.06	$3.10	$3.06	$2.88	$3.06	$2.93	$3.12	$3.07	$2.87
Albany-Schenectady-Troy, N.Y.	2.70	2.91	2.60	2.14	2.84	2.54	2.62	2.91	2.11
Albuquerque, N. Mex.	3.09	3.14	2.96	----	----	2.77	3.11	----	2.27
Allentown-Bethlehem-Easton, Pa.-N.J.	2.67	2.72	2.81	2.36	2.77	2.56	2.79	2.95	2.51
Atlanta, Ga.	2.44	2.89	2.58	1.85	2.69	2.54	2.45	----	1.96
Baltimore, Md.	2.62	2.80	2.62	2.42	3.06	2.58	2.87	2.88	2.49
Beaumont-Port Arthur, Tex.	3.20	3.27	3.10	2.97	3.29	2.84	3.12	----	2.65
Birmingham, Ala.	2.88	3.29	2.85	2.50	3.29	2.53	2.99	3.02	2.48
Boise, Idaho	----	----	----	----	----	2.75	----	----	----
Boston, Mass.	2.64	2.80	2.73	2.32	2.85	2.51	2.57	2.65	2.23
Buffalo, N.Y.	2.91	3.04	2.74	2.46	3.04	2.72	3.00	3.04	2.64
Burlington, Vt.	2.18	2.65	----	1.89	----	2.10	2.63	----	----
Canton, Ohio	2.76	2.97	2.75	2.57	3.12	2.67	2.77	2.95	2.41
Charleston, W. Va.	3.24	3.26	3.11	----	3.27	2.62	3.30	3.27	2.73
Charlotte, N.C.	2.11	2.37	2.32	1.53	2.20	2.22	2.12	----	1.47
Chattanooga, Tenn.-Ga.	2.19	2.58	2.59	1.48	2.60	2.10	2.51	2.76	2.03
Chicago, Ill.	3.17	3.21	3.07	2.56	3.17	3.04	2.95	3.10	2.48
Cincinnati, Ohio-Ky.	2.84	2.95	3.05	2.51	2.91	2.63	2.72	3.01	2.51
Cleveland, Ohio	2.96	3.04	2.97	2.61	3.05	2.86	2.90	3.04	2.54
Columbus, Ohio	2.75	2.93	2.73	2.34	3.08	2.72	2.64	2.77	2.41
Dallas, Tex.	2.50	2.60	2.29	----	2.48	2.45	2.48	----	2.09
Davenport-Rock Island-Moline, Iowa-Ill.	2.89	3.19	2.86	2.15	3.18	2.78	3.06	2.99	2.49
Dayton, Ohio	3.09	3.14	3.00	2.63	3.18	2.72	3.01	----	2.49
Denver, Colo.	2.83	2.92	2.69	2.13	2.84	2.82	2.77	----	2.29
Des Moines, Iowa	2.85	3.03	2.54	2.31	2.96	2.73	2.96	----	2.55
Detroit, Mich.	3.10	3.29	3.17	2.93	3.30	2.99	3.27	3.21	2.64
Fort Worth, Tex.	2.51	2.96	2.69	----	2.93	2.11	2.23	2.67	2.30
Green Bay, Wis.	----	2.50	2.61	2.16	2.66	2.52	2.41	----	2.25
Greenville, S.C.	1.70	1.89	2.00	1.27	1.88	2.21	2.02	----	1.33
Houston, Tex.	3.03	3.12	2.46	3.13	3.14	2.46	2.81	3.36	2.34
Indianapolis, Ind.	2.83	2.97	2.85	2.18	3.07	2.67	2.89	3.02	2.41
Jackson, Miss.	----	2.57	2.31	----	2.51	2.23	2.32	----	----
Jacksonville, Fla.	2.42	2.68	2.36	1.97	2.59	2.30	2.27	----	1.92
Kansas City, Mo.-Kans.	2.83	3.02	2.89	2.29	2.93	2.73	2.81	3.10	2.39
Lawrence-Haverhill, Mass.-N.H.	2.37	2.60	2.40	2.22	2.49	2.38	2.49	2.27	1.95
Little Rock-North Little Rock, Ark.	2.16	2.22	2.04	----	2.55	2.39	2.22	----	----
Los Angeles-Long Beach, Calif.	3.01	3.17	3.22	2.78	3.16	2.97	2.91	3.13	2.44
Louisville, Ky.-Ind.	2.97	3.07	2.88	2.59	3.10	2.67	3.04	2.88	2.45
Lubbock, Tex.	----	----	----	----	----	2.50	----	----	----
Manchester, N.H.	2.13	1.96	----	1.52	2.03	2.14	2.10	----	1.33
Memphis, Tenn.	2.30	2.78	2.48	1.53	2.74	2.47	2.43	2.72	2.08
Miami, Fla.	2.46	2.53	2.06	----	2.76	2.40	2.25	----	1.60
Milwaukee, Wis.	2.86	3.17	2.89	2.54	3.28	2.87	2.90	2.99	2.64
Minneapolis-St. Paul, Minn.	2.84	3.07	2.78	2.55	3.04	2.75	2.72	2.91	2.46
Muskegon-Muskegon Heights, Mich.	2.69	2.74	----	2.32	2.91	2.69	2.70	2.68	2.41
Newark and Jersey City, N.J.	2.88	3.03	3.18	2.63	3.03	2.74	2.97	2.94	2.45
New Haven, Conn.	2.52	2.69	2.49	2.20	2.57	2.60	2.69	2.56	2.08
New Orleans, La.	2.42	2.87	2.30	1.98	2.94	2.41	2.60	3.15	2.24
New York, N.Y.	2.77	2.92	3.12	2.59	3.08	2.75	2.89	2.84	2.42
Norfolk-Portsmouth and Newport News-Hampton, Va.	2.58	2.76	2.40	1.80	2.77	2.26	2.59	----	----
Oklahoma City, Okla.	----	2.67	2.13	----	----	2.36	2.34	----	----
Omaha, Nebr.-Iowa	2.82	2.95	2.53	2.15	2.88	2.64	2.74	2.84	2.47
Paterson-Clifton-Passaic, N.J.	2.81	2.97	2.86	2.33	2.80	2.67	2.68	2.99	2.34
Philadelphia, Pa.	2.85	2.88	2.50	2.25	2.89	2.71	2.69	2.89	2.09
Phoenix, Ariz.	2.80	3.15	2.76	----	3.17	2.67	3.02	----	2.16
Pittsburgh, Pa.	3.00	3.08	2.92	2.68	3.13	2.97	3.00	3.19	2.63
Portland, Maine	2.18	2.33	2.19	1.86	2.50	2.19	2.22	----	----
Portland, Oreg.-Wash.	3.04	3.14	2.91	2.50	3.11	2.88	2.98	3.06	2.47
Providence-Pawtucket, R.I.-Mass.	2.27	2.45	2.51	1.99	2.42	2.44	2.36	2.32	1.74
Raleigh, N.C.	----	2.53	----	1.30	----	2.28	2.08	----	----
Richmond, Va.	2.61	2.88	2.39	1.73	2.85	2.26	2.71	----	1.91
Rockford, Ill.	2.43	2.87	2.68	2.19	2.70	2.39	2.59	2.65	2.25
St. Louis, Mo.-Ill.	2.93	3.11	2.92	2.75	3.11	2.81	2.83	3.11	2.60
Salt Lake City, Utah	2.77	2.75	2.75	2.25	2.82	2.71	2.77	----	----
San Antonio, Tex.	----	2.47	2.47	----	----	2.52	2.50	----	----
San Bernardino-Riverside-Ontario, Calif.	2.74	3.09	3.04	2.45	3.06	2.87	2.95	----	2.42
San Francisco-Oakland, Calif.	3.22	3.14	3.14	2.68	3.12	3.22	3.16	----	2.60
Savannah, Ga.	2.50	2.89	----	2.14	2.99	2.59	2.50	----	2.26
Scranton, Pa.	2.25	2.62	----	1.68	2.49	2.48	2.50	----	1.83
Seattle, Wash.	2.79	----	2.84	2.48	2.91	2.82	2.93	2.81	2.37
Sioux Falls, S. Dak.	----	----	----	----	----	2.45	----	----	----
South Bend, Ind.	3.06	3.09	2.91	2.70	2.82	2.83	3.06	3.07	2.59
Spokane, Wash.	2.93	3.24	2.81	2.49	3.05	2.87	3.14	----	2.51
Toledo, Ohio	2.99	3.12	3.08	2.53	3.11	2.83	3.02	2.93	2.52
Trenton, N.J.	2.62	2.84	2.69	2.29	2.92	2.78	2.59	3.02	2.25
Washington, D.C.Md.-Va.	2.61	2.66	2.80	1.82	2.81	2.52	2.75	----	----
Waterbury, Conn.	2.48	2.76	2.83	2.00	2.72	2.50	2.59	2.64	2.39
Waterloo, Iowa	2.73	----	2.77	2.55	----	2.65	2.86	----	----
Wichita, Kans.	2.53	2.79	2.55	----	----	2.58	2.71	----	----
Wilmington, Del.-N.J.	3.01	3.12	2.84	2.26	2.95	2.77	2.89	3.22	2.18
Worcester, Mass.	2.49	2.82	2.64	2.30	2.79	2.45	2.68	2.59	2.29
York, Pa.	2.46	2.55	----	2.00	2.47	2.50	2.51	2.56	1.99

See footnotes at end of table.

Table 2. Average hourly earnings[1] in 82 major labor markets for men in selected occupations studied in 6 broad industry divisions, 1960-61--Continued

Labor market	Maintenance and powerplant				Custodial and material movement				
	Painters	Pipefitters	Sheet-metal workers	Tool and die makers	Janitors, porters, and cleaners	Shipping and receiving clerks	Truck-drivers, all types	Truckers, power (forklift)	Watchmen
Akron, Ohio	$2.93	$3.09	$3.14	$3.26	$2.29	$2.54	$2.77	$2.86	$1.89
Albany-Schenectady-Troy, N.Y.	2.62	2.94	3.00	----	1.76	2.02	2.53	2.25	1.78
Albuquerque, N. Mex.	----	----	----	3.46	1.62	2.10	2.02	2.24	1.63
Allentown-Bethlehem-Easton, Pa.-N.J.	2.55	2.65	2.98	2.76	1.93	2.16	2.38	2.26	1.60
Atlanta, Ga.	2.38	2.97	----	3.05	1.32	2.37	2.18	2.00	1.33
Baltimore, Md.	2.43	2.78	2.81	3.18	1.55	2.14	2.33	2.46	1.42
Beaumont-Port Arthur, Tex.	3.15	3.31	3.30	----	1.75	2.38	2.39	2.62	----
Birmingham, Ala.	2.81	----	----	2.88	1.47	2.49	2.00	2.13	1.45
Boise, Idaho	----	----	----	----	1.65	----	2.35	----	1.37
Boston, Mass.	2.36	2.77	2.73	3.01	1.71	2.17	2.38	2.24	1.74
Buffalo, N.Y.	2.72	2.93	2.99	3.23	2.00	2.46	2.60	2.49	1.83
Burlington, Vt.	1.94	----	----	----	1.68	----	2.16	----	1.22
Canton, Ohio	2.75	2.98	----	3.01	2.08	2.28	2.34	2.36	1.81
Charleston, W. Va.	3.19	3.29	3.35	----	1.92	2.69	2.51	2.55	1.56
Charlotte, N.C.	----	----	----	----	1.23	1.88	1.95	1.97	1.20
Chattanooga, Tenn.-Ga.	2.30	2.75	----	2.73	1.30	1.99	1.81	1.76	1.37
Chicago, Ill.	3.28	3.17	3.08	3.36	1.91	2.45	2.83	2.44	1.58
Cincinnati, Ohio-Ky.	2.86	3.09	3.10	3.09	1.78	2.37	2.64	2.46	1.65
Cleveland, Ohio	2.76	2.91	2.97	3.22	1.93	2.42	2.70	2.45	1.87
Columbus, Ohio	2.67	3.00	2.96	3.22	1.69	2.15	2.40	2.32	1.59
Dallas, Tex.	2.26	----	----	2.78	1.29	1.94	2.13	1.90	1.45
Davenport-Rock Island-Moline, Iowa-Ill.	2.73	3.13	3.06	3.36	1.99	1.96	2.24	2.48	1.72
Dayton, Ohio	2.98	----	----	3.45	2.04	2.42	2.51	----	1.76
Denver, Colo.	2.75	2.93	3.00	3.05	1.68	2.42	2.34	2.25	1.72
Des Moines, Iowa	2.87	----	----	3.06	1.78	1.98	2.40	2.42	1.69
Detroit, Mich.	3.06	3.21	3.22	3.42	2.17	2.56	2.73	2.56	1.60
Fort Worth, Tex.	2.57	----	----	3.00	1.43	2.14	1.82	1.97	1.25
Green Bay, Wis.	2.30	2.59	----	2.84	1.91	----	2.44	2.17	1.74
Greenville, S.C.	1.56	----	----	----	1.19	1.68	1.66	1.43	1.23
Houston, Tex.	2.95	3.28	3.35	3.07	1.35	2.10	1.94	2.16	1.27
Indianapolis, Ind.	2.51	2.99	3.09	3.16	1.72	2.37	2.35	2.35	1.43
Jackson, Miss.	----	----	----	----	1.10	1.98	1.66	1.31	1.25
Jacksonville, Fla.	2.22	----	----	----	1.23	2.15	1.71	1.68	1.32
Kansas City, Mo.-Kans.	2.81	3.04	2.99	3.07	1.72	2.48	2.48	2.34	1.67
Lawrence-Haverhill, Mass.-N.H.	2.35	2.57	----	2.80	1.60	1.95	2.25	2.19	1.78
Little Rock-North Little Rock, Ark.	----	----	----	2.78	1.24	1.71	1.65	1.67	1.24
Los Angeles-Long Beach, Calif.	2.91	3.18	2.90	3.20	1.94	2.51	2.69	2.54	2.01
Louisville, Ky.-Ind.	2.94	3.13	3.05	3.38	1.77	2.20	2.45	2.31	1.57
Lubbock, Tex.	----	----	----	----	1.21	----	1.67	1.32	1.15
Manchester, N.H.	----	----	----	----	1.35	1.75	2.02	1.81	1.27
Memphis, Tenn.	2.11	2.98	----	2.99	1.24	1.94	1.96	1.57	1.07
Miami, Fla.	2.14	----	----	2.53	1.31	2.12	1.98	1.56	1.29
Milwaukee, Wis.	2.96	3.06	3.10	3.42	2.00	2.44	2.67	2.56	1.71
Minneapolis-St. Paul, Minn.	2.99	3.04	----	3.15	1.87	2.38	2.63	2.42	1.84
Muskegon-Muskegon Heights, Mich.	----	2.69	----	2.99	2.13	----	2.46	2.28	2.04
Newark and Jersey City, N.J.	2.72	3.04	3.02	3.10	1.90	2.38	2.86	2.45	1.87
New Haven, Conn.	2.41	2.68	----	2.81	1.63	2.30	2.38	2.04	1.55
New Orleans, La.	2.44	2.96	2.90	----	1.11	1.98	1.76	1.99	1.13
New York, N.Y.	2.52	2.76	2.83	3.12	1.81	2.27	2.81	2.61	1.81
Norfolk-Portsmouth and Newport News-Hampton, Va.	2.49	----	----	----	1.42	1.82	1.61	1.69	1.16
Oklahoma City, Okla.	----	----	----	----	1.25	1.90	2.09	2.00	1.28
Omaha, Nebr.-Iowa	2.67	2.89	2.87	2.81	1.68	2.25	2.19	2.11	1.77
Paterson-Clifton-Passaic, N.J.	2.69	2.91	2.89	3.14	1.89	2.37	2.59	2.33	1.76
Philadelphia, Pa.	2.71	2.90	2.83	3.12	1.79	2.39	2.60	2.26	1.66
Phoenix, Ariz.	----	----	----	3.17	1.53	----	2.14	2.16	1.59
Pittsburgh, Pa.	2.82	3.02	3.03	3.23	2.00	2.56	2.78	2.50	1.86
Portland, Maine	1.90	----	----	----	1.61	1.74	2.23	1.88	1.57
Portland, Oreg.-Wash.	3.12	3.08	3.01	----	1.88	2.57	2.61	2.47	1.97
Providence-Pawtucket, R.I.-Mass.	2.21	2.34	2.49	2.84	1.53	1.91	2.32	2.03	1.43
Raleigh, N.C.	----	----	----	----	1.19	1.85	1.42	1.59	1.15
Richmond, Va.	2.44	2.97	2.99	----	1.38	2.03	1.72	1.72	1.46
Rockford, Ill.	----	2.70	----	3.05	1.82	2.13	2.30	2.21	1.83
St. Louis, Mo.-Ill.	2.80	3.03	3.11	3.26	1.76	2.33	2.66	2.43	1.54
Salt Lake City, Utah	----	----	----	3.01	1.65	2.10	2.26	2.10	1.74
San Antonio, Tex.	----	----	----	----	1.07	1.76	1.62	1.44	1.12
San Bernardino-Riverside-Ontario, Calif.	2.71	2.94	----	3.15	1.88	2.48	2.56	2.41	----
San Francisco-Oakland, Calif.	3.15	3.12	2.96	3.53	2.15	2.76	3.04	2.66	2.16
Savannah, Ga.	2.62	----	----	----	1.17	----	1.97	2.04	1.49
Scranton, Pa.	----	----	----	2.83	1.45	2.00	2.35	1.93	1.44
Seattle, Wash.	2.88	----	2.97	3.12	1.96	2.44	2.71	2.46	2.09
Sioux Falls, S. Dak.	----	----	----	----	1.60	----	1.99	----	----
South Bend, Ind.	3.00	3.12	3.08	3.32	2.12	----	2.67	2.53	1.96
Spokane, Wash.	----	----	----	----	1.90	2.64	2.58	2.62	1.77
Toledo, Ohio	2.84	3.09	----	3.32	2.04	2.46	2.68	2.38	2.09
Trenton, N.J.	2.70	2.83	2.90	3.16	1.88	2.20	2.42	2.22	1.66
Washington, D.C.-Md.-Va.	2.34	----	----	----	1.40	2.28	2.14	1.90	1.35
Waterbury, Conn.	2.43	----	2.77	2.87	1.85	2.38	2.24	2.58	1.90
Waterloo, Iowa	----	2.76	----	----	2.01	----	2.43	----	2.23
Wichita, Kans.	2.64	2.81	----	2.91	1.75	----	2.30	2.28	1.68
Wilmington, Del.-N.J.	3.11	3.28	3.17	3.08	1.99	2.44	2.54	2.41	1.66
Worcester, Mass.	2.57	2.75	----	2.67	1.72	2.05	2.26	2.27	1.85
York, Pa.	2.17	2.43	----	2.69	1.66	1.81	2.27	2.07	1.65

[1]Hourly earnings exclude premium pay for overtime and for work on weekends, holidays, and late shifts.

Note: Dashes indicate no data, data not available, or data that do not meet publication criteria.

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